TERICAN 50 RESTS



SEPTEMBER 1940

35 CENTS A COPY



BELL TELEPHONE SYSTEM



AMERICAN FORESTS

EDITOR Ovid Butler

ASSOCIATE EDITORS

Lilian Cromelin Erle Kauffman

Published monthly by

THE AMERICAN FORESTRY ASSOCIATION

919 Seventeenth Street Washington, D. C.

The American Forestry Association is a citizens' organization for the advancement of intelligent management and use of the country's forests and related life and outdoor recreation.

Its educational activities seek to bring about a better appreciation and handling of these resources, whether publicly or privately owned, that they may contribute in the highest degree to the welfare of the nation and its people.

In addition to publication of two magazines — AMERI-CAN FORESTS and CONSER-VATION, both designed to keep before the people of the country important conservation questions and issues, the Association carries on educational projects in various fields including forest fire prevention, reforesta-tion, protection of fish and wildlife, upstream flood control, prevention of soil erosion, preservation of wilderness areas, establishment of national forests and parks, development of forestry by private endeavor, the teaching of conservation in the schools of the country, promotion of research in timber growing and use and ex-pansion of markets for forest products.

The Association is independent. It has no connection with any federal or state governments. It is non-political and non-commercial. All its resources and income are devoted to the advancement of conservation. It has been so operated since its founding in 1875. All citizens interested in forestry and conservation are eligible for membership.

35c A COPY, \$4.00 A YEAR

CONTENTS

VOLUME 46

September, 1940

NUMBER 9

AMERICAN FORESTS

в	١.	_	_
r	a	а	е

386	THE	READERS'	FORUM

389 THE EDITOR'S LOG

391 LIGHTNING BATTERS THE WESTERN FORESTS By Erle Kauffman

393 I MARRIED A SMOKECHASER By Lydia Ann Lord

402 NEW ENGLAND HURRICANE BENEFITS WILDLIFE By Gordon T. Woods

The Editors are not responsible for loss or injury of manuscripts and photographs while in their possession or in transit. All manuscripts should be accompanied by return postage. The Editors are not responsible for views expressed in signed articles . . . Notice of change of address for AMERICAN FORESTS should be received by the tenth of the month preceding issue.

Copyright, 1940, by The American Forestry Association

⁴⁰⁸ HENRY WALLACE, FARMER-CONSERVATIONIST
By Lilian Cromelin

⁴⁰⁹ CHARLES L. McNARY—A MAN AND HIS TREES By John B. Woods

⁴¹¹ EDITORIAL Extended Remarks

⁴¹² WANTED! LARGE SPECIMEN AMERICAN TREES

⁴¹³ LET'S FIND AND SAVE THE BIGGEST TREES
By Joseph L. Stearns

⁴¹⁴ HACKBERRY—Tree Series
By G. H. Collingwood

⁴¹⁸ FOREST FIRE TRAGEDY IN AUSTRALIA
By Marvin Klemme

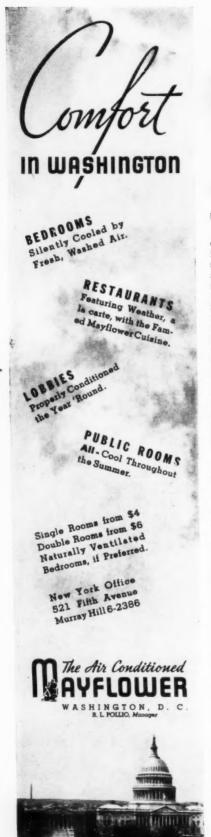
⁴²¹ FEDERAL NEWS AND REVIEWS

⁴²² NEW BOOKS

⁴²³ AROUND THE STATES

⁴²⁶ YOUR SHADE TREES—Akron's Street Shade Tree Plan By H. S. Wagner

^{432 &}quot;WHO'S WHO" AMONG THE AUTHORS





FIRE AND NATIONAL DEFENSE

SIR: I was much impressed by your editorial "Forests in the National Defense" which appeared in the August issue of American Forests. I read it at a time when newspapers were full of stories of forest fires raging in the Northwest and when the dry forests right here in California were burning on many fronts. Indeed, I recently read somewhere that more forest fires have been reported so far this year than in any previous year. If this is true, it seems to me that our own carelessness and lack of forest fire preparedness are beating the fifth column agents you speak of to it. Looks like we must conquer at least some of our destructive habits before we can arm against an invader. If we don't, we'll all be fifth columnists, at least where forest fires are concerned.-J. O. Perru. Los Angeles, California.

THE AGE OF A TREE

Sir: Your attention may already have been called to a news item recently published in the Baltimore Sun in which the writer, H. L. George, civil engineer and forester, claims an age of 10,000 years for cedar trees in Texas.

"Sometime ago I was retracing some of the surveying work done by Jacob Keuchler, an early surveyor who located lands west of the Pecos River about forty miles north of Kent, Texas," Mr. George is quoted as saying. And he continues: "This work was done in 1879. He marked trees with a Catholic cross, as witness to the corners that he set. These cedars have not grown sufficiently in fifty-nine years to cover these marks. Several of these trees were on our survey line and had to be cut, and at that time we noticed that their annual rings were so close together that they could not be seen without the aid of a powerful magnifying glass.

"By examining several of the trees closely, we found there were approximately seventy annual rings to the one-fourth inch. At this rate of growth, one inch would cover a span of 280 years, and since some of these trees are thirty-six inches in diameter, they would be approximately 10,000 years old."

As you can readily see, Mr. George, "civil engineer and forester," computed incorrectly on the data which he gives.

He found an average of 280 rings to the inch. Then he says that many of the trees are thirty-six inches in diameter, and multiplies 280 by thirty-six, which comes to 10,080 years. He should, of course, have multiplied by eighteen, the radius of the tree, and not by the diameter. That would make them just half the age he calculated—5.040.

I thought you might like to publish a correction of that statement. Tens claims many "firsts," but we ought not to let her get away with 10,000 year old trees until she can show better evidence than is set forth in that item.—E. I. Terry, Rock Hill, South Carolina.

WHY WILDERNESS?

SIR: In your Editor's Log of the August number of American Forests yet glowingly portray the recent activities of "Trail Riders of the Wilderness" expeditions. I can fairly hear the crunching of the many nature delicacies due to those many horses' hoofs as they dig into the mellow earth of the woodlands and other equally yielding coverings of the wildenesses penetrated. No doubt, you have also thought of these certain penalties. Seemingly it is those who put up the cash for these trips rather than those due to other requirements who make up these present parties.

If we are to maintain wilderness areas, seemingly we will need to draw the line governing access to them depending upon other than cash consideration.—Ernest F. Coe, Director, The Everglades National Park Association, Inc., Miami, Florida.

MORE ABOUT BIRCH

SIR: When you wrote me in regard to the dying of birch I thought that you referred to the losses which are being noted in our forest stands. We would certainly not recommend planting white birch as an individual ornamental tree even though I believe it is our most beautiful tree.

Ornamental birch trees throughout New England have largely been killed by the bronze birch borer. In many sections there is hardly a one left. When planted in clumps they seem to survive much longer.—H. B. Peirson, State Entomologist, Augusta, Maine.

the the eter, which I, of , the

ish a Texas t not r old dence 'erry,

s you ies of cpeding of those

other other rilderhave

alties.

e cash

these

areas, e line

upon

est F.

da.

ard to

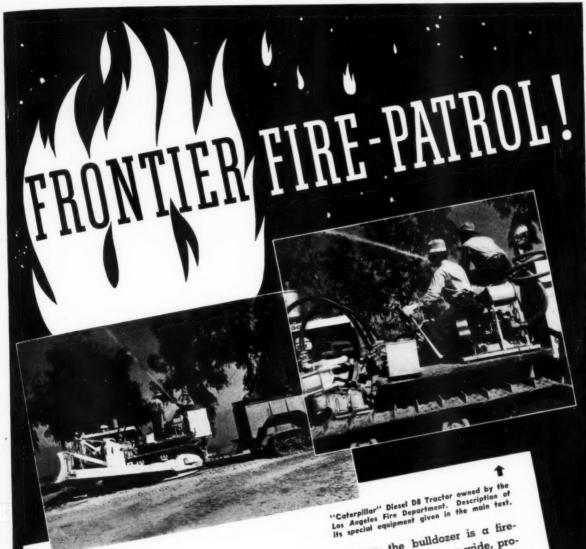
noted

rtainly as an

ough I

led by ections lanted much omolo-

ESTS



ERE is a fire-fighting unit that can head across rough, unbroken country and meet a blaze on its own grounds. For the sure-footed tracks of a "Caterpillar" Diesel Tractor have a way of paving hills, swamps and rocky terrain with a readily traveled road of steel—and the load that's with the road of steel—and the load that's with the

And, of course, the bulldozer is a firefighter in itself—able to turn a wide, protective swath of earth across the path of

the flames!

For further information on these units, or other "Caterpillar" Diesel equipment, see other "Caterpillar" dealer or write direct to a "Caterpillar" dealer or PEORIA, ILLINOIS CATERPILLAR TRACTOR CO., PEORIA, ILLINOIS

CATERPILLAR

DIESEL ENGINES AND ELECTRIC SETS
TRACK-TYPE TRACTORS . ROAD MACHINERY



WILBUR K. THOMAS

WILBUR KELSEY THOMAS, humanitarian, was first elected to the Board in 1937 and served a two-year term. He was then re-elected in 1939 to serve for five years. His breadth of view in matters pertaining to education and the public service, and his long experience in organization and administration, have been invaluable to the Board in directing the affairs of the Association.

Born in 1882 in Amboy, Indiana, he was reared on a farm there, in a section that was for many years the Miami Indian Reservation. For several generations his people had lived in North and South Carolina, but they were Quakers and, not believing in slavery, could not maintain themselves and so, with other Quaker groups,

OUR DIRECTORS

migrated to southern Indiana, later settling in the northern part of the State.

Educated at Friends University, at Wichita, Kansas, Mr. Thomas prepared for the ministry, spending ensuing years doing religious and educational work, and in study. He completed the course at the Yale Divinity School in New Haven in 1907 and for the next ten years lived in Boston, taking his Ph.D. degree in philosophy at Boston University in 1914. During the World War, he registered as a conscientious objector and devoted his time to helping the Quakers, Mennonites, Jews, and members of other religious denominations. In 1918 he became Executive Director of the American Friends Service Committee (Quakers), remaining until 1929, directing relief activities for civilians carried on under the Service Committee, in conjunction with English Friends, in allied countries. After the war the relief work was extended to Germany, Austria, Poland, Russia and Serbia. Through the generous contributions of Americans, the Friends were able to feed over 5,000,000 undernourished German children under fourteen years of age,-the highest number fed at any one time being 1,200,000 a day. In Austria, Poland and Serbia the activities were directed to help, not only children, but the rehabilitation of families, basing the work upon help given the civilian people in France. During that time, the American Friends Service Committee raised and expended over \$29,000,000 for relief work in Europe and sent over more than 800 men and women volunteer workers.

Since 1930, Mr. Thomas has been Executive Director of the Carl Schurz Memorial Foundation, Inc., with headquarters in Philadelphia, Pennsylvania. This Foundation was established in 1930, as an outgrowth of the war work and its chief objectives are to honor the memory of the most distinguished American-German immigrant, Carl Schurz, and to promote a better integration between the Germanic element in this country and the rest of the American nation. In this work the Foundation has granted many Fellowships for study by Ameri-

can foresters in Germanic countries.

THE AMERICAN FORESTRY ASSOCIATION

919 SEVENTEENTH STREET, WASHINGTON, D. C.

OFFICERS

President JAMES G. K. McCLURE

Executive Secretary OVID BUTLER

GEORGE O. VASS

Business Manager FRED E. HORNADAY

Vice-Presidents

- Philip W. Ayres—New York—Society for the Protection of New Hampfor the Proteshire Forests
- Arthur H. Blake—California— Western Outdoor Quarterly
- W. B. Brown—New Hampshire—N Hampshire Forestry Commission
- **Zenry T. Crosby**—Mississippi—President, Mississippi Forestry Association
- Jay N. Darling-Iowa-Former President, National Wildlife Federation

- Otto C. Doering—Illinois—Izaak Walton League of America

 Newton B. Drury—California—Secretary. Save-the-Redwoods League
- Walter W. Read-New York-President-Boy Scouts of America
- Mrs. Fae Huttenlocher—Iowa—Chairman of Conservation, National Council of State Garden Clubs, Inc. Henry Plimpton Kendall—Massachu-setts—Director, The New England Council
- Council

 Benjamin Hamilton Rizer—Washington—Chairman, Washington State
 Planning Board

 Mrs. H. E. Kjorlie California —
 Chairman of Conservation, General
 Federation of Women's Clubs

 Wilfred Kurth New York Chairman, Home Insurance Company
- Edward E. Love—Missouri—American Wildlife Institute
- David T. Mason-Oregon-Forester
- Roderic Olzendam Washington Weyerhaeuser Timber Company Arthur Newton Pack—New Mexico— President, American Nature Asso-
- ciation
- Lawrence C. Phipps—Colorado—Former Senator from Colorado

 Robert M. Wilkin—Ohio—Judge of the
 U. S. District Court for Northern
 Ohio, Eastern Division
- Mrs. Arthur Murray Williams-York—Chairman of Conserv The Garden Club of America Conservation.

Board of Directors

- Goodwin Beach, 1944—Connecticut— Connecticut Forest and Park Association

- ciation

 F. W. Besley, 1940—Maryland—State
 Forester of Maryland

 P. R. Camp, 1940—Virginia—Camp
 Manufacturing Company

 Samuel T. Dana, 1942—Michigan—School of Forestry and Conservation. University of Michigan

 Rarl T. Frederick, 1941—New York—New York State Conservation
- Council
- Council
 Henry S. Graves, 1941—Connecticut—
 Yale School of Forestry
 William B. Greeley, 1943—Washington—West Coast Lumbermen's
 Association
 A. S. Houghton, 1944—New York—
 State Reforestation Commission
 L. F. Livingston, 1944—Delaware—
 American Society of Agricultural
 Engineers
- John C. Merriam, 1941 District of Columbia—Carnegie Institution of Washington Joseph Hyde Pratt, 1943 North
- Carolina Forestry Association Wilbur K. Thomas, 1943 Pennsylvania—Carl Schurz Memorial Foun-
- dation

 John W. Watzek, Jr., 1940—Illinois—
 National Lumber Manufacturers
- National Lumber Manufacturers Association

 Vanderbilt Webb, 1942—New York— New York Forestry Association

 William P. Wharton, 1942 Massa-chusetts National Association of Audubon Societies



THOSE who read Dr. Cornish's article on page 400 of this issue must wonder if the Thorn Tree which for twelve centuries has served as a landmark on the Devonshire coast of England still stands. The story was written before Hitler released the aerial blitzkrieg which, as this issue goes to press, is pouring destruction along the channel

coast. A bomb may already have obliterated every evidence of the tree. As to this—and all England—only time will tell. But if you believe in ancient traditions, destruction of the tree may be fateful, for when the Anglo-Saxons selected a tree for this now historic landmark they chose the Hawthorne because of the immemorial tradition that he who destroyed it would be forever cursed.

Census takers who routinely count the people of the United States every decade have it easy compared to the corps of men who keep annual tab on our wild duck populations. Between two and three thousand trained observers engage in this work, which is headed up by the Fish and Wildlife Service of the Department of the Interior. Men of this agency scout the flyways of migratory birds from the Aretics to deep Mexico appraising the increase or decrease of the various species of wild ducks that every spring and fall migrate northward and southward. Some of their experiences and hardships are interestingly told in Wildlife Leaflet BS-165, recently issued by the Wildlife Service.

This duck census is of tremendous importance to millions of people in the United States, particularly the great army of duck hunters. Upon its results depends in considerable degree the extent of the duck hunter's sport. When the census shows that the duck population is on the down, the hunter may expect various restrictions upon his legal hunting privilege and vice versa.

This year's census brings happy news to the duck hunters. It shows the wild duck population on the up. According to the Wildlife Service, there are this year "somewhere in the neighborhood of 65,000,000 ducks and geese on the continent"—an increase of about fifteen per cent over last year. This is two and one-half times the 1935 estimate—critical year in wild duck history. Mallards and pintails, the 1940 census shows, are staging the best comeback.

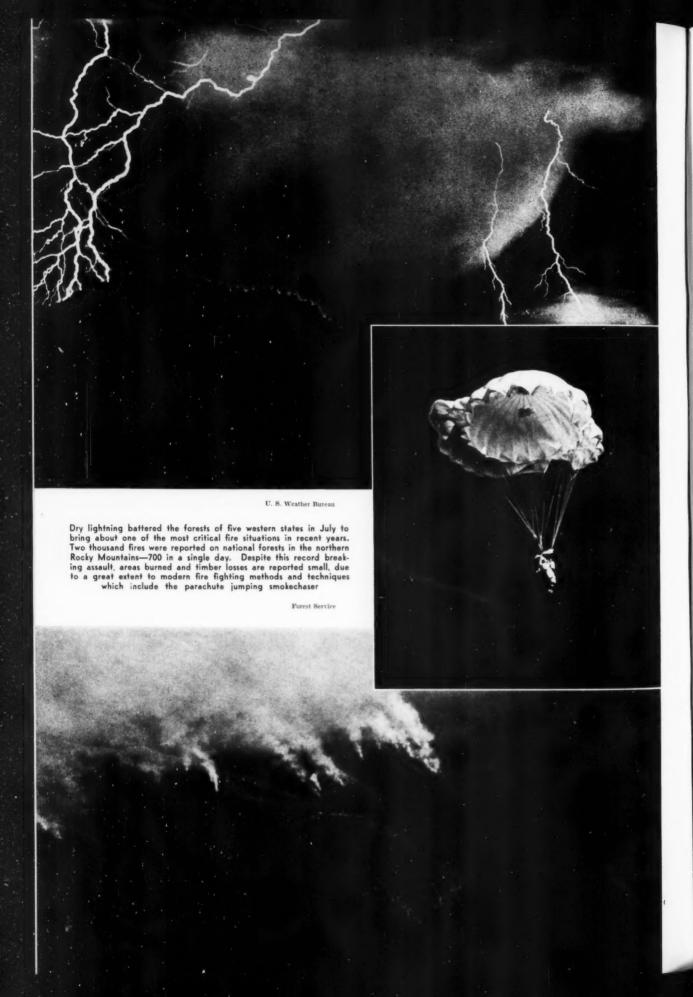
As reported on page 420, the 1940 showing of migratory game birds has warranted Secretary Ickes in extending the duck hunting season this fall and has brought from the Wildlife Service the optimistic statement that "the experience of the past few years conclusively demonstrates that under a program of sound management the United States, Canada and Mexico can continue to enjoy reasonable sport with migratory game birds and at the same time perpetuate them."

In this issue American Forests launches a unique campaign. It is a sort of treasure hunt to locate and save the biggest living trees of each of the more important species growing in the United States. For details turn to Mr. Stearns' article on page 413. If the idea there proposed does not lure you to this hunt, there is somehow something lacking in your love of trees and of the beauty and majesty that is in their bigness.

There is more than sentiment in this undertaking. According to the laws of forest genetics, bigness begets bigness. Therefore seeds from the big specimens of the different species may serve to spread their bigness throughout the land. If they are sound and have grown rapidly so much the better from the standpoint of breeding up the species. Once they are located and made known, the world, as with the man who invents a better mouse trap, will make beaten paths to their doors.

The very thought of preserving such progenitors of noble races adds to the thrill of adventure offered by this tree hunt. Who would not feel proud to be the discoverer and the locator of the largest tulip tree or the largest redwood or the largest white pine now growing in these United States? And what county and state would not be proud to be able to claim that in its soil grows the largest known tree of a given species?

Ond Puster



LIGHTNING BATTERS WESTERN FORESTS

Two Thousand Fires Spot Northern Rocky Mountains as National Forest Record Approaches New High, But Timber Losses Reported Small

By ERLE KAUFFMAN

DRY lightning, throughout July, burned a new chapter in national forest history. Striking with unprecedented fury over western timberlands made tinder-dry by record breaking heat and drought, these devastating storms, as this is written early in August, were already threatening the all-time high in number of fires on national forests. With the season little more than half through, 11,000 fires have been

officially reported by the Forest Service-5,000 under the record annual figure of 16,000 in 1936. Should present eritical conditions prevail throughout August, officials expect a new and unpredictable high.

National forests in the northern Rocky Mountain region-Montana, northern Idaho, northeastern Washington and northern South Dakota-were the hardest hit. During the ten days from July 12 to July 22, more than 2,000 lightning fires were reported-700 in a single day. Eight thousand men were mobilized to control these blazes, the most serious of which were reported on the Bitterroot, Deerlodge, Kootenai and Coeur d'Alene national forests.

In the Pacific Northwest-Oregon and Washingtonwhere for forty days rainfall had totalled but a few hundredths of an inch, the driest period on record in the region, fires were not so numerous, but the situation, despite late July rains, remained critical. California had already brought several large fires under control, but in late July was battling a 13,000-acre blaze on the Modoc National Forest.

On the brighter side, Forest Service officials report that despite one of the worst periods of dry lightning storms on record, areas burned and damage to valuable timber stands have been small. For example, on the 2,000 fires reported for the critical ten-day period in the northern Rocky Mountains, early estimates indicate that less than 10,000 acres have been burned over. More than 1,700 of these fires were brought under control before they had burned a quarter of an acre or less. A hundred reached ten acres, twenty-five from fifteen to 150 acres, and only several burned over 1,000 acres or more.



With 8,000 men mobilized for Mopping up a lightning-set fire. action in the northern Rocky Mountains, eighty-five per cent of such fires are being held to a quarter of an acre or less each

This was largely due, it was pointed out, to rew and improved fire control methods and techniques developed by the Forest Service. These include the use of light and heavy tractors, narrow gauge trucks for the newly widened fire trails, especially trained 40-man fire crews (described in the June issue of AMERICAN FORESTS), and parachute jumping fire fighters (described in the December, 1939, issue of American Forests). The effectiveness of these new and improved methods, all of which are still in the experimental stage, is eloquently stated in Forest Service records which reveal that while the number of fires on national forests for the first six and a half months of 1940 more than double the number for the same period in 1939, the area burned over is considerably less. So far this year, 202 acres per million of national forest land in the West have been burned. During the same period in 1939, the area burned on Western national forests was 303 acres per million.

Reviewing the situation in the northern Rocky Mountain region, Axel Lindh, chief of fire control for the Forest Service regional office at Missoula, Montana, reports: "The first dry lightning storm followed a six-week period of extremely dry weather. Strikes spread fires far and wide, from the Salmon River to the Canadian boundary, resulting in one of the worst situations in the region's history. The organization of the Forest Service was put under terrific strain to cope with it, but succeeded in getting almost every fire under control.

"Hardly had the first crisis, arising from more than 700 fires in one dry storm, passed when other storms occurred. Fires were and are continually springing up, some reaching considerable size. But we are staging a campaign which we believe will be effective. Men, machines, trucks, busses, airplanes and pack mules are supplying an organization of about 5,000 fire fighters, many of whom have not rested from the fatigue of the first campaign. Our whole organization numbers about 8,000 men."

A master penman with a flare for dramatization could build stirring stories of loyalty, determination, courage and sheer physical endurance out of the activities of these fire fighters and their supporting personnel, according to another Forest Service officer on fire duty in the region. He states: "This drama has been enacted with an absence of confusion and with a record of accomplishment that pays high dividends for the long hours of training, planning, and preparation for just such an emergency. It certainly brings home the need for developing the first-line fire-fighting organization to full strength and the value of a well trained, highly skilled, well equipped fire-fighting organization."

Reviewing fragments of the drama being enacted, he pictured: "Lookouts with shutters blown off in the storm; a blacksmith looking for a string of pack mules to shoe in an almost trackless wilderness, and finding it; windfalls holding up travel; men and women putting in sleepless nights to keep the wheels moving; weary fire fighters coming in from one fire only to start for another with just a few hours' rest; men hiking for hours over steep mountain trails; parachuters dropping on fires for the first time; dry-land farmers getting their first taste of fire-fighting; ex-forest officers volunteering their services without pay; and a hundred other incidents."

In his report, Mr. Lindh points out that "Lightning fires when they first start may be no larger than an ordinary pienic bonfire. This is the time to put them out, and every effort is made to reach them before they spread. Smokechasers, either singly or in pairs, are often obliged to travel miles on foot over rugged terrain and through dense forests to reach those set in remote places. When a large number occur, the problem of getting men to all of them is great and the smokechasers, always inadequate in the back country, go for days and nights at a time.

"I cannot speak words of praise strong enough to express my admiration for the way these lone fighting heroes of the backwoods have carried on during the past weeks of continuous fire bombardment. Many continue the battle far in the rugged back country with shoes worn out, feet blistered, and clothes in tatters. These men are the local seasoned, skilled woodsmen who, year after year, form the backbone of the fire protection organization in the West. Success or failure of organized fire protection rests to a large extent upon them.

"In the present situation we have thus far been able to put most of the fires out before they became large. Those that did spread to large proportions were controlled by organized crews of men thrown into the field at the shortest possible notice. The service of supplies and equipment have worked day and night to back up these men. Airplanes again proved their worth in putting down camps by parachute and keeping them supplied in remote localities."

One of these airplanes, dropping supplies to a backwoods fire camp, crashed against a mountainside when caught in a sudden down-draft of wind, killing the pilot, Robert Maracich, of Missoula, and seriously injuring Dell Claybaugh, Forest Service observer.

As this is written, the situation in the northern Rocky Mountains remained critical, with certain forest areas closed to the public and other areas scheduled to be closed. All fires, however, were reported under control.

Reporting from Portland, Oregon, and the North Pacific region, John C. Kuhns, assistant regional forester, states: "June, 1940, was the driest and hottest of record in the North Pacific region. For from forty to fifty days only a few hundredths of an inch of rain was measured; high temperatures and low humidities ruled. As might be expected, light ground fuels were flashy, while heavy fuels, which include dead snags, were dry enough to burn in midseason form.

"The first important national forest fire was on the Siskiyou forest in southern Oregon. According to the report, a prospector got into trouble with his partner and started a fire to attract the ranger. It brought him, all right. During the last week in June and the first week in July, lightning fires were reported on many national forests, as well as on state and private lands. The most critical period was from July 1 to July 4, during which 40,000 acres were burned over on lands under organized protection. A number of dwellings in the town of West Timber, Oregon, were destroyed; several camps and logging operations were burned out. Showers in mid-July improved the situation somewhat. However, experienced forest fire men are not too optimistic, since it requires but twenty minutes, when humidity is low, for dead

On the Siskiyou fire, Mr. Kuhns reports, an innovation in transportation was given a tryout. "The light tractor and bulldozer now being developed in this region," he states, "has extended some of the old horse trails to approximately double their former width. On these widened trails a narrow gauge truck was used to service fire camps. A five-mule pack string was put in service over the same routes so that expense and efficiency could be compared. The truck delivered five times the amount of material at a cost of fifteen cents a ton mile. The cost of transportation by pack animals was \$1.50 a ton mile."

bracken to change from wet to crackling dry.

Mr. Kuhns also reported that the one-lick, or progressive method of fire control, especially when applied by the trained 40-man crews being developed by the Forest Service, proved its worth in July in the North Pacific region. A number of fires, he states, would "without question have gotten away and covered much larger areas if these trained crews had not been available." He further stated that untrained crews, when using the one-lick system, greatly increased their performance. This method, he explained, "applies mass production methods to fire line construction. The crew, each member of which has a particular function-axman, shovelman, hazel hoeman-works along the fire line location, each man taking a few strokes then mov-When the ing forward to take a few more strokes. erew has passed, the trail is complete."

The parachute jumping fire fighter also proved his worth, Mr. Kuhns reported—so much so that a large number of experienced smokechasers are now being trained for the hazardous task.

I MARRIED A SMOKECHASER

By LYDIA ANN LORD



"I sneaked into the Forest Service by the back door"

PAUL BUNYAN is one of the few patron saints of industry whose following remains exclusively masculine. Women have made a creditable record in aviation, but it is hard to visualize an Amazon high-climber topping a mighty fir. A hopeful job-hunter may wonder whether to write "Dear Sir" or "Dear Madam" in his application letter, but a whistle-punk is reasonably safe in speaking of the bull-o'-the-woods as "he". Except for a few years during and following the World War,

when women acted as forest fire lookouts, forestry in all its branches has remained definitely "he-man".

Women being what they are, however, forbidden pastures always look greener. So it was with a feeling very close to triumph that I sneaked into the United States Forest Service by the back door, when my smokechaser husband took me with him to his guard station near the summit of the Cascades, in Oregon.

Because we had stopped to post "No Smoking While

Traveling" signs on all the trails branching off the road, we were several hours covering the twenty-five miles from the ranger district headquarters to our station, and reached there after dark. The first band of sheep on its way in to the summer grazing allotment was bedded down in the big meadow in front of our cabin. Sheep were no novelty to me,



"This is the view from our front yard — our cabin was set at the foot of this beautiful timbered slope"

but the noise produced by a band of two thousand was a new experience. It wasn't loud enough nor strange enough, however, to keep me from falling asleep almost before I had finished supper.

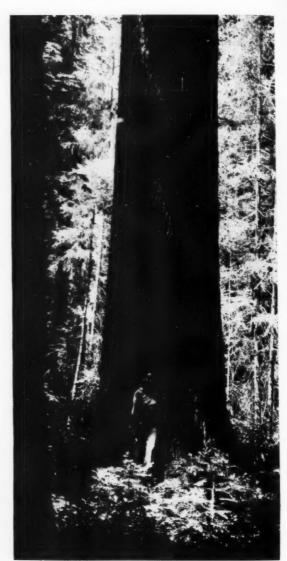
The next morning my euriosity was functioning once more and I proceeded to take stock of our summer home. The cabin was set at the foot of a timbered slope, facing a twenty-acre meadow. Ponderosa pine crowded around the opening, the golden trunks and dark needles in sharp contrast to the yellowish green grass of the meadow. The road ran just in front of the cabin, skirting the meadow, and I could hear the river, although it was hidden by the trees at the far side of the opening. A small creek crossed the yard just to the west of the cabin. It had been dammed to form a pool hardly more than ten feet from the back door. An attractive log fence enclosed the station grounds.

The cabin had two good-sized rooms and boasted running water. Directly behind it was a woodshed, apparently convention headquarters for all the packrats of the upper Willamette. A large garage stood some distance away, while across the road, at the east edge of the meadow, were the barn and storehouse for the sheepmen's supplies.

The feature I found most attractive, aside from the natural setting, was the flagged walk from the gate to the cabin and around to the woodshed. It was made of cross-sections of red cedar.



"The pool at the back door of the cabin, made by damming a little stream, was edged with ferns"



"One of the giant Douglas firs that stood near our station"

Our first week was busy and interesting, but not spectacular. We unpacked supplies, cleaned the cabin, helped the sheepmen count their bands, collected fifty bushels of packrat nests in the woodshed, and learned genuine gratitude toward bats. I don't mind mice, and I don't scream at snakes, but up until then I went completely berserk at the sight of a bat. But did you know that bats eat mosquitoes? Well, they do — and I forgave them all.

The hardy Cascade mosquito has formed the basis of a series of true, fantastic, and border-line stories that would fill at least a small book. A standard example of the second variety is that of the fisherman who, falling asleep, awoke to find two mosquitoes discussing him.

"Shall we eat him here, or take him back to the lake?" the first mosquito asked. "Let's eat him here," the other responded. "If we take him up there the big ones will take him away from us."

My favorite of the it's-true-and-I-can-prove-it tales concerns an inspection trip my husband made several years ago at the height of the mosquito season. He met a fisherman and his wife coming down a mountain trail at a brisk pace. The man was carrying a pack and fishing gear, his wife a small fly-sprayer. She would take three steps and spray her husband, three more and spray herself. It seemed to work.



"Part of a Service pack-train, and my red cedar flagged walk"

Toward the end of our first week, after a heavy lightning storm, the fire lookout who was to be our nearest neighbor - a mere six and a half miles and a climb of three thousand feet - started up the trail with a knapsack of emergency rations to last until the packer brought in his summer supplies by mule train. In less than an hour he was

back. Lightning had struck a big tree near the trail and it was burning merrily. He had kicked a trail around it and come back to phone in his report and get a fire pack. In open-mouthed amazement I watched my husband shoulder a pack also, and the two men disappeared up the trail before my scattered wits could be collected. At that early date I knew nothing of the three minutes in which a man is supposed

to be able to be on his way to a fire after he has received instructions. They made it in considerably less time than that, Pm sure.

I sat in the cabin and pictured flames roaring through the tree tops. Then, with the passing of noon, I pictured weary fire-fighters starving to death instead.

They had said the fire was only a mile and a half up the trail, so I packed a lunch and set out. The trail was steep for the first mile, but I huffed and puffed, fought mosquitoes, and finally found the men working on the six-foot tree with a saw. They told me the only way to get at the fire in its top was to cut it down.

This was accomplished and the fire extinguished by midafternoon. I was then sent back to the station to phone in a report and break the news to the P. A. — the protective assistant who directs fire-fighting from the ranger district headquarters — that the lookout would be back with us that night, rather than go on to the top of his mountain.

My call must have been the crowning touch to his day. It appeared that every lookout arriving at his station that afternoon had been greeted by telltale wisps of blue smoke, many of them in our vicinity. Then the fun began. By ten o'clock that night the assistant

> ranger arrived to take charge of the situation. By midnight truck loads of CCC boys began to arrive. At two o'elock the CCC kitchen equipment was unloaded, the stove set up, and breakfast preparations started. At four, breakfast was served and crews started out to the fires already re-



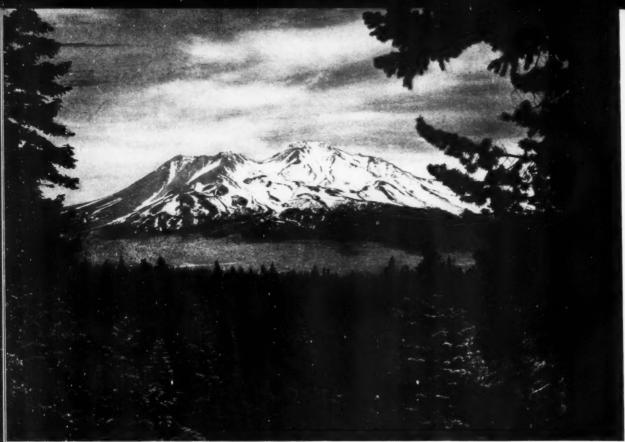
"Our odd moments were filled rounding up sheep—this band is being herded close, ready for immediate driving through the counting corral"



"The actual counting, as the sheep come through the gate at the point of the Y"

ported. Others were held in camp ready to strike at new ones.

After that, I hopefully settled down for some sleep. It must have been nearly seven when I was awakened by a stream of the most fluent profanity I ever heard. "Shut up!" said another (Continuing on page 431)



Bureau of Reclamation

To control and utilize the heavy rainfall and melting snow from the slopes of Mt. Shasta in California, the nation today is spending \$170,000,000—a project made necessary to a great extent by the partial disappearance of the great forests which once clothed these slopes

REDEEMING SHASTA'S WATERS

By CHARLES F. BERRY

IN CALIFORNIA'S Central Valley floods of the Sacramento River grow heavier with each new year. Very recently the onrush of waters, more devastating than ever before, left 600 people homeless, damaged farms to the extent of \$15,000,000, and left misery and death in its wake.

To a great extent, it is the old story of man upsetting the balance of nature through destruction of watershed cover. As nature originally planned it, the heavily wooded slopes of Mt. Shasta held back the spring run-off of rain and melting snow and maintained the steady flow of the river throughout the dry summer months. Of course, in years of excessive rainfall and snow there were occasional floods along the Sacramento, but these a balanced nature absorbed and repaired such damage as they wrought.

Largely because man underestimated the importance of this standing timber and woodland growth, the river no longer behaves as nature intended. The result is that thousands of acres of the richest agricultural lands in America are now ravaged by seasonal floods and drought.

Today, to prevent the annual repetition of disaster, engineers are building the \$86,000,000 Shasta Dam at the headwaters of the Sacramento. For repairing and remodeling the valley's natural drainage system and bringing irrigation water to the more arid lands in the south, the whole bill will be approximately \$170,000,000.

In the early days the virgin forests on the south side of Mt. Shasta formed a perfect watershed for the then usually well-behaved Sacramento and its tributaries, the Pit and McCloud rivers. Some 6,000 square miles of densely wooded slope held back the rains of winter to feed the streams throughout the summer.

Even in the days of '49 the Sacramento River was navigable the year round to the vicinity of Red Bluff, 160 miles upstream. Today the stream is not only unnavigable but unmanageable for a large part of that distance. No longer open to shipping above the City of Sacramento, it dwindles to a shallow stream by autumn to become a raging torrent in the spring. With a recorded spring run-off of 610,000 second-feet, the Sacramento's flood potentialities are exceeded in the United States only by the Mississippi, Columbia and Ohio rivers.

With the growth of population, wooded land was cleared for agriculture and large areas were logged. Fires did even greater damage. Nowhere in California is there a more striking example of the results of ruthless fires than in the Mt. Shasta region. The Sacramento

Canyon and the south and west slopes of Mt. Shasta, which once bore one of the finest forests in northern California, stand today as mute evidence of human carelessness and lack of foresight.

So thorough was man's destruction that thousands of acres will never return to forest without aid. Replanting by man is the only remedy. During the boom days of California lumber companies clear-cut the best and most accessible timber. Slash and debris were broadcast burned, destroying the young trees. Repeated brush fires took care of the few hardy seedlings that managed to survive.

The mining and smelting industry likewise contributed to killing off the tree growth. At the turn of the century copper smelting took a boom in the heart of the watershed. Two miles upstream from the present dam site, at Kennitt, a big smelter was established which ran full blast from 1906 to 1920, denuding many thousands of acres of excellent watershed with its poisonous sulphur fumes. Another smelter at Coram, close by, and a third smelter at Bulley Hill, fifteen miles upstream on the Pit River branch, also took their toll.

To restore nature's balance, the Federal Bureau of Reclamation has started one of its greatest undertakings. Going much farther than merely repairing damage, the Central Valley Project completely revamps the Valley's whole river system to fit present-day needs. Included in the project is the construction of two large concrete dams, 350 miles of main canals, 200 miles of power transmission lines, the highest double-deck bridge in the world, and scores of auxiliary structures, such as siphons, bridges, tunnels and pumping plants.

Most important structure of the project is the Shasta Dam, located near Redding some 220 miles up the Sacramento. When completed, this will be the highest overflow spillway in the world, rising 560 feet from the foundation, a slightly curved structure, 3,500 feet long on the crest and 580 feet thick at the base. Second only to Boulder Dam in height, and exceeded only by Grand Coulee in mass, it will require 5,600,000 yards of concrete.

With a tributary drainage of 6,646 square miles in California, Shasta Dam will back up the waters of the Sacramento, Pit and McCloud rivers, each for a distance of thirty-five miles, to create a reservoir with a gross storage capacity of 4,500,000 acre-feet. This reservoir will serve to stabilize the year-round flow of the Sacramento, checking the seasonal waste of flood waters and increasing the flow at dry periods to keep the river navigable.

Yet in all this vast undertaking, one all-important feature was left out — the matter of reforestation. A total of \$170,000,000 was being spent to repair damage attributable largely to the destruction of watersheds, but not one cent appropriated to restore the original watershed cover.

It is said that today Californians take their dams seriously but that they take their forests more seriously. When work started on the \$75,000,000 Shasta Dam unit someone innocently asked, "What about the trees?"

Yes, what about the trees! The question gained echo throughout California. Destruction of tree growth had made the great Sacramento unmanageable. Unless this cover was restored erosion would continue, dirt and silt would still pour into the stream and reservoir, and ultimately the water storage capacity of the dam itself might be imperiled.

Nearly all the lands near the source of the drainage are within the boundaries of national forests and are administered as a part of a definite plan of land management. There are, however, some 190,000 acres of land

California State Department of Public Works

The Sacramento River's flood potentialities are today exceeded in the United States only by the Mississippi, the Columbia and the Ohio rivers. Here is shown one of its tributaries, the Pit River, as it winds through forests that still remain a setting Californians hope to restore on the entire watershed





Florest Name

Contributing greatly to the destruction of Mt. Shasta's forests and subsequent rapid run-off of water were the copper smelters. At left, a smelter in operation in 1907. Fumes have already partially destroyed the tree cover. At right, the same scene in 1910, showing complete destruction and the beginning of erosion

immediately adjacent to the dam outside the forest boundaries which are under no coordinated form of management and which are so situated and of such character that they may cause extensive damage to the huge public investment.

If the pioneers were shortsighted, the same cannot be said of Californians today. Influential businessmen and civic leaders demanded that the vast reclamation program include reforestation of the area, not only to protect the \$75,000,000 investment of the dam, but that the state

might enjoy fuller utilization of the land. The Sierra Club, the Shasta-Cascade Wonderland Association, the State Chamber of Commerce, various local chambers, city councils and service clubs started a movement to have this troublesome block of land acquired and administered as a part of the Shasta National Forest. Already bills to this effect have been introduced in both houses of Congress.

Behind this movement is a comprehensive program to restore the lands adjacent to the reservoir to their maxi-

mum usefulness as a watershed while at the same time developing additional supplemental values for public use under the efficient administration of the Federal Forest Service. A detailed study has been made which shows that no known vegetative cover that will grow on these lands can compete with tree growth in effectiveness as a protection of watershed values or as a permanent source of profit under proper management.

Although more than 100,000 acres are capable of growing timber of commercial size, there exist today no large stands of merchantable timber. A few patches of virgin timber are scattered adjacent or near the shoreline of the proposed reservoir, but they are too small or so located that they cannot be economically cut at the present time. Many of the timbered areas have been so severely burned that



Another example of destruction wrought by smelter fumes in the Sacramento watershed.

Such areas must be replanted

the young growth has been killed, leaving only scattered fire-scarred and decadent trees. Planting will be required on these areas to bring back the forests.

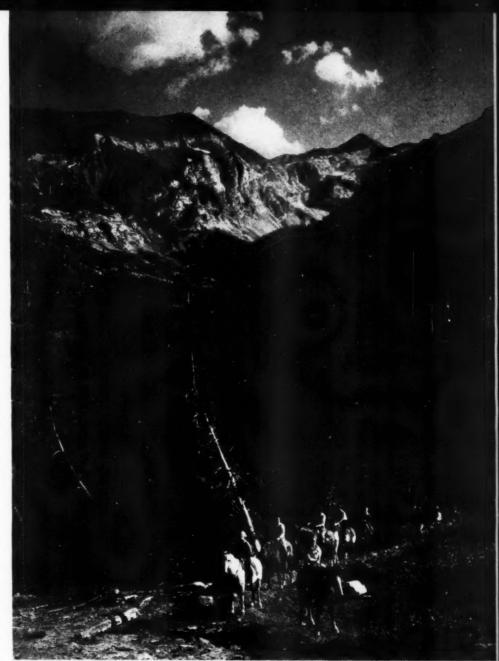
With the completion of the reservoir, many of the potential timber areas which are now inaccessible can be reached by water. Through the utilization, under selective cutting, of merchantable trees on a permanent basis, in conjunction with timber on the adjacent national forest, many communities can be supplied with a stable source of income without detriment to the primary value of the land as watershed.

The combination of natural features with the brush and timber cover makes the fire problem in this region an extremely hazardous one. During an eight-year period 275 fires, concentrated near the highways and accessible areas, were recorded. With few exceptions all were man-caused and many were known to be of incendiary origin. The few scattered areas selected for recreational use adjacent or near the proposed reservoir should be adequately protected. The Forest Service estimates the annual expense for fire protection, exclusive of the cost and maintenance of buildings and facilities, at only five cents an acre a year.

The matter of recreation brings up other problems. Californians love their fishing too well to allow such a trifle as the world's tallest spillway

dam to interfere with it. When anglers learned that the height of the dam would probably prevent any successful operation of fish ladders and would block all future migration of sea-run steelhead and salmon past the dam site, a mighty hue and cry went up. No dam was going to spoil their fishing. Hadn't their protests caused hydraulic mining and other important industries to be restricted so that the streams wouldn't become polluted and kill off the fish? Well, no one was going to shut off their fishing with \$75,000,000 worth of concrete.

And then the hunters and outdoor lovers discovered that the proposed new reservoir, with its elongated fingers extending up the rivers and streams, would form

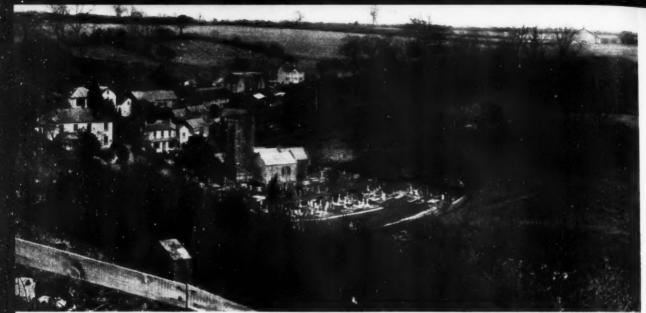


Cecti V. Ages

Type of forest cover Californians have resolved to restore to the Sacramento watershed. This is in Oregon, just north of the California boundary line, and similar to the forests which once covered Mt. Shasta's slopes

an effective water barrier. Herds of deer and elk now occupying the state game refuge adjoining the project would be completely cut off from their winter feeding grounds to the south. On these problems, however, the government was one jump ahead of the sportsmen. While the governmental appropriations for the \$170,000,000 project failed to include plans for reforestation, the conservation of wildlife, both fish and game, is provided for on all such government projects by the Act of March 10, 1934. The act states, in part:

"Whenever the federal government through the Bureau of Reclamation or otherwise, impounds water for any use, opportunity shall be given to the Bureau of Fisheries and/or the Bureau (Continuing on page 424)



The Salcombe Regis Church and the peaceful hamlet of Church Town nestle in the Devonshire Downs

THE SALCOMBE REGIS THORN

By VAUGHAN CORNISH, D.Sc.

ON THE Devonshire coast of the English Channel the hamlet of Salcombe Regis and its ancient church nestle beneath steep hillsides at the head of the comb, a Vshaped valley a mile in length and sloping downwards to

the sea. The sides of the comb have a double slope, steep above where the light soil, suitable for grazing but of small fertility, is of the Greensand formation, a gentler slope below where the rich red marl begins.

The Celts of Britain lived on the open plateau, leaving untilled the woody and marshy valleys; but when our Saxon forefathers obtained dominion in Devonshire twelve hundred years ago they broke the stubborn glebe and the red earth of the valley bottom became the ploughed "field" of the community. In those days there was no division by hedgerows into the little parcels of land which we now call fields. Above the ploughed field of the comb, the upper slope and the claycapped plateau of Salcombe Regis remained open as a common grazing ground for the cattle of the parish community. All this common was known as "the Hill."

> A landmark maintained since Saxon times, the Salcombe Regis thorn stands within this stone enclosure, in front of Thorn Farmhouse

The two ridges which enclose the comb, called Salcombe and Dunscombe hills, meet at a point which almost exactly coincides with that change of soil which necessitated change of agricultural use. A thorn tree



AMERICAN FORESTS

was planted here to mark this economic division of the land. In the earliest days of the Saxon conquest the parish of Salcombe Regis was the personal property of the Sovereign, but later on one of the Saxon kings bestowed the Manor on the Monks of Exeter, who were succeeded a little later by the Cathedral Chapter. At the house adjacent to the thorn tree a Canon held the Manor Court, and supervised the agriculture of the whole parish. The old house still stands, and some architectural details remain from early medieval times. The house is called "Thorn" and an adjacent part of the plateau "Thorn Hill." Thus, evidence clearly shows that the thorn tree was planted as a landmark before the house was built.

But why a thorn rather than some other kind of tree? It may be that a dominant consideration was the immemorial tradition that the hawthorne was a trysting place of the fairies, who were sure to inflict misfortune on anyone who damaged their precious possession. Thus, the planting of a thorn was a method of insuring that he should be cursed "that removeth his neighbour's landmark."

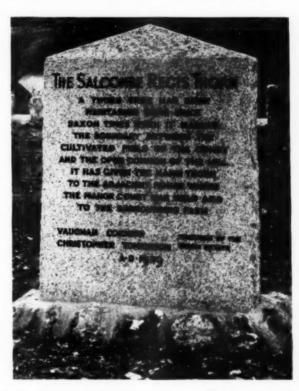
The thorn tree,—hawthorn or whitethorn to be exact,—is not, however, very long lasting; even four hundred years is said to be unusual. And although there were other thorn trees besides the Salcombe Regis Thorn which were landmarks in England in Saxon times, the parish of Salcombe Regis is exceptional in the maintenance of its ancient landmark.

When the diocesan authorities of Exeter gave up managing the agriculture of Salcombe Regis, they divided the Manor into several farms. That adjoining the old Manor Court House was called "Thorn Farm." This my forebears held as "copyholders" under the Chapter until the beginning of the nineteenth century, when my great-grandfather purchased the Manor, becoming freeholder of Thorn Farm. This farm has come down to me strictly entailed on account of its special historic interest.

In mid-Victorian times the Salcombe Regis Thorn died, and the people of the parish were greatly disturbed, anticipating that evil would come upon them unless a thorn tree were maintained on the historic

site. So a new thorn was speedily planted, with public ceremony and music. This tree remained until a few years ago, when once more the planting of another tree became necessary. This was done by my elder brother, the late James George Cornish, then owner of Thorn Farm. But there was no ceremony nor music.

The present generation of the peasantry have a much better education than their predecessors and local traditions are unfortunately fading out. Moreover visitors from the neighboring watering place of Sidmouth, little more than a mile away, have been wont to pass by the little thorn tree without any (Continuing on page 432)



The monumental stone, erected beside the Salcombe Regis thorn tree



The farmhouse adjacent to the thorn tree, where the Manor Court was held

NEW ENGLAND HURRICANE BENEFITS WILDLIFE

By GORDON T. WOODS

THIRTEEN hurricanes have crossed New England within the last century, but none of these inflicted the terrible scar of destruction and disaster nor improved forest wildlife conditions as did the hurricane of September 21, 1938. Moving at a rate of over 100 miles an hour, the gale left a broad path of ruin fifty miles wide through southern and central New England.

The Red Cross lists the number of persons dead or missing at about 588, with serious injuries to 1,754 people, property losses in 93,122 households, and the destruction of 6,933 summer cottages, 1,991 permanent homes, 2,369 barns, 7,438 miscellaneous buildings, and 2,605 boats. Farther inland, the Connecticut Valley tobacco planters lost almost their entire crop when the drying sheds, in which the tobacco had been stored, were scattered over the adjacent fields.

Besides the great loss of lives and property, one of the greatest and most far-reaching losses to land owners from the hurricane was from fallen timber. In the path of the storm wind-thrown timber lay, like so many jackstraws, in large and small units over 15,000,000 acres. The actual area on which the wind-fall did almost complete damage was 600,000 acres, nearly 1,000 square miles. A final estimate by the Northeastern Timber Salvage Administration of wind-thrown timber is a total of three and one-quarter billion board feet enough to floor 120 square miles with inch planks. The amount of timber that could be salvaged was estimated at one and one-quarter billion board feet or approximately the timber on 125,000 acres.

Because a large part of our New England wildlife is dependent on forests and wooded lands for all or part of its habitat, the question has arisen as to the effect of the 1938 hurricane on forest wildlife. There are those who, having a hazy conception of the close association of forests and wildlife, feel that the storm created havoe in valuable game habitats. There are others, chiefly wildlife managers, who believe that the storm was beneficial to many species of wildlife. Dr. R. E. Trippensee, well-known authority on wildlife, says that the New England hurricane has done more for wildlife than man could do in fifty years. Both schools of thought are agreed that forests are favorable natural habitats because they furnish food, breeding grounds, and shelter for most species of wildlife. Did the hurricane destroy any one of the three prime essentials so necessary for the survival of forest wildlife? In general, it did not. Instead it made them more available.

Many animals derive much of their food from the low herbaceous and shrubby flora of New England woodlands. Ruffed grouse are almost entirely dependent on the great variety of buds, leaves, fleshy fruits, seeds, and insects found within forested areas. Deer obtain practically all their food from the forest in the form of oak and beech mast, buds, twigs, and sprouts of most tree species in the lower six feet of forest flora. Stored hickory nuts, walnuts, and butternuts make up the winter menu for frisky squirrels, while low succu-

lent sprouts and bark from woody plants provide abundant food for rabbits. Even some species of waterfowl find food in forest mast. Unwise agricultural practices have upset the ecological balance of many of New England's wildlife habitats, and as a result these areas were unable to supply the plant foods necessary for the maintenance of large wild animal populations. It was in these areas that the storm furnished most abundantly one of the needs of wildlife.

Openings made in the forest canopy allow for increased plant growth and a greater variety of food plants. Succu-



A forest-going yacht! — One of the freaks left by the hurricane. Habitat was undoubtedly created for many species of wildlife but — it's no place for a boat

lent shoots and seeds of fruit and seed-bearing shrubs, liberated from their shady prison, will germinate and fill in these openings if not overtopped by quick-growing tree species. Considerable browse has been made available to deer and rabbits by fallen trees. Nutbearing trees withstood the storm best and consequently their fruits will still be available to squirrels and waterfowl. Because of the reduction of competition, the

individual trees left standing will soon become heavy producers of forest mast.

Since many eastern streams are deficient in the supply of available fish food, the effect of the hurricane on the produc-

These woods, levelled by the great wind, now furnish more abundantly the needs of wildlife — food and shelter



The lost covers — so necessary to the survival of ruffed grouse and other small game, — the browse upon which the deer depend — storage places for the nuts, winter menu of the squirrels — and the low, succulent sprouts and barked plants on which the rabbits must depend, — all are more plantiful in these wind-wrecked, devastated woods

Hames' Studio



J. E. Dixon



U. S. Forest Service

tion of available fish food has been distinctly beneficial. Trees which have fallen into streams or along lake shores furnish support for large numbers of insects and other aquatic organisms which inhabit such places. Upturned root systems have not only provided excellent dusting places where both birds and fur-bearing mammals may rid themselves of external parasites, but grit and minerals will also be available after deep snowfalls.

Undoubtedly, the storm destroyed a number of songbird shelters and grim evidence of the fate of some shorebirds has recently been recorded. This is not surprising, however, when one considers that 15,000,000 acres, nearly thirty-five per cent of all the land area of New England, were exposed to raging high winds. Numerous shallow marsh ponds were destroyed when sand from the North Atlantic beaches was swept inland by tidal waters and deposited over many acres of productive bay and marsh bottoms. Consequently, considerable duck food was covered up or carried away by the receding water. However, the cutting of new and the enlargement of old inlets into Moriches and Shinnecock Bays on southern Long Island, and the removal of large quantities of bottom sludge partially compensated for the harmful effects of the hurricane.

Many wildlife species are also restricted or dependent on forest areas for suitable breeding grounds. The ruffed grouse, king of New England game birds, should experience no difficulty in locating well concealed drumming logs on which to notify the forest dwellers of his willingness to mate. Forest cover on the headwaters of tributary streams is essential in maintaining cold water necessary for the well-being of spawning trout and salmon. Cold or cooling waters are required if their eggs are to hatch and the fingerlings are to survive. Although the effects of the storm on fish habitats resulting from the loss of forest cover has not as yet been determined, the United States Bureau of Fisheries station at Pittsford, Vermont, reports, ". . . that many wild trout were undoubeedly destroyed since they were discovered stranded, in numerous instances, along the line of debris marking the high water." However, the Connecticut State Board of Fisheries and Game has reported a larger run of spawning shad, ascending streams which were formerly heavily polluted, but recently scoured by the 1938 spring and hurricane floods.

The down timber in places has made certain areas almost inaccessible to man and, in general, the resulting interspersion of environmental types is providing a more favorable juxtaposition of habitat essentials. Is it not a reasonable inference that if the requirements of animals are provided so as to reduce their daily and seasonal cruising range, a proportionate increase in wildlife density per unit of area should follow? Aldo Leopold, in his authoritative book, Game Management, has suggested that doe deer on a range well supplied with cedar swamps, may experience a decreased breeding rate on the same range from which all the available cedar has been cut. In contrast, the hurricane has provided a more readily available food supply and consequently many species will be better able to attain their maximum breeding rate.

Many types of shelter are also essential to the existence of wildlife. Thick refuge cover from which game cannot be driven by hunters is obviously of the utmost importance during the open hunting season. Winter cover which offers invisibility and protection during snowstorms tends to favor the presence of a larger population of spring breeding stock. Nesting cover, roosting cover, and cover offering protection from ex-

treme weather conditions is required by most species of wildlife. Low forest growth into which quail may fly and yet not be pursued by hawks not only offers protection to this species from birds of prey, but from ground enemies as well. Fish, too, need escape cover from large predatory fish and from such valuable furbearers as the mink and otter.

Many pine stands were smashed and splintered so that very little merchantable timber could be salvaged. These uncleared stands are providing many animals with much dense, impenetrable cover. They afford quick retreats for the snowshoe hare of northern New England and for the cottontail throughout the Connecticut River Valley, thus providing readily available protection from hawks, owls, and adverse weather conditions. The dense impenetrable cover afforded by uncleared areas will undoubtedly be an ideal retreat for deer fortunate enough to escape from sections more intensively hunted. Evergreen slash left on cleared areas, either in windrows or in piles, is also furnishing escape and protective facilities to various wildlife species.

Ralph T. King, in his study of the management of ruffed grouse, states that the cover factor is just as essential for grouse as food and "... several different kinds are necessary on a successful grouse range. The more important types are: drumming cover, resting cover, brooding cover, molting cover, and winter cover." All of these shelter types are now found most abundantly scattered in pure coniferous and mixed hardwood-softwood stands in the hurricane belt. The opened areas are conducive to more effective plant growth and food plants near nesting cover are essential to both young and old birds. Grouse nests are often located on the edges of forest openings such as were created by the hurricane, and the piled or unmolested slash, if not destroyed, will furnish many nesting sites. The low dense canopy of down slash provides ideal brooding cover, protection from summer heat and winter winds, and from wandering predators.

In the spring of 1939, New England fishermen saw many "strange and wonderful creations" wrought by the hurricane. The tops of wind-thrown trees lying in stream beds may have caused fishermen to move on in disgust to more open waters, yet the swirling eddies caused by these snags were digging new and deeper channels, thus providing immediate available food and cover for fish. Rafts of logs stored in ponds not only restricted boat fishing, but the resulting shade produced a cooling effect, which is beneficial to trout ponds. Logs which drop to the bottom will provide fish with natural protective cover for many years to come and will cut down the depredations of fish eating birds. Fertility of ponds will be increased by bark dropping to the bottom. Logs placed at the edges of ponds have also created a very favorable condition for some fur-bearers. Raccoon are better able to elude their enemies along logs at the edges of ponds.

It is known that the production of pine timber in large blocks tends to reduce the food of many forest animals, and as the stands mature the number of tenanted wildlife habitats are likewise reduced. This condition in the past has been an important factor in reducing the quantity of New England game. Now that a vast amount of old timber has been removed, the opened areas are beginning to produce good quality food and cover which are readily available for animal use.

In order to conserve this abundance of game food and cover, it is necessary to make the woodlands accessible for fire fighting crews and to (Continuing on page 424)

WOOD WASTE MAGIC

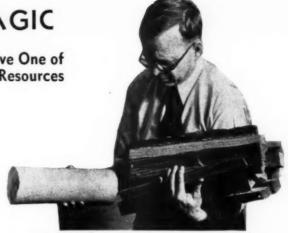
American Ingenuity and Enterprise Solve One of the Problems of Waste of Natural Resources

By O. A. FITZGERALD

OUT of the West has come something new in fuel—a clean, smooth, shiny, easy-to-handle round log about four inches thick and twelve inches long, hard as a rock and highly efficient. No special kindling is required to start one burning. Just chip off a little from one end and use it to light the fire. In hundreds of Western towns it is giving coal and natural wood a merry race for the solid fuel business.

In the larger cities, Los Angeles, San Francisco, Portland, Seattle, and Spokane, you can buy these logs at grocery and neighborhood stores, service stations, or from the ice man, as well as from fuel dealers. They may be delivered in bundles of six along with an order of groceries or you may toss a few into the trunk of your car as you stop for gas on the way home. More significant than this innovation in merchandising is that not so long ago these logs were just piles of sawdust, shavings, and trimmings in some western sawmill.

Extensive rerouting of sawmill waste from the refuse burner to homes, ships, streamliners, restaurants, and scores of other uses has resulted from an inventive young chief engineer at an Idaho sawmill finding a way to smash this bulky, fluffy material into a solid cylinder which can be tossed around without danger of having to pick up the millions of pieces with a scoop shovel. Three times the specific gravity of the original wood,



A Pres-to-log — modern light fuel competitor made from sawmill waste—and its bulky equivalent in wood

they weigh eighty-four pounds to the cubic foot. One of the logs weighs eight pounds and contains the equivalent of an armload of ordinary wood or a bushel basket of waste shavings. Toss a log into water and it will sink like a piece of iron.

Use of mill waste for fuel by a lumber plant or by a large concern in a mill town is not new, but for a New York fireplace, a trailer in Florida, a streamline train whizzing across the plains, or a ship at sea, to burn solid sawdust from the west certainly is. Mills commonly fire their boilers with their own waste. Transporting this bulky stuff farther than across town, however, is out of the question.

Since Idaho contains the world's largest stand of white pine, our most valuable softwood, it was proper that when Potlatch Forests, Inc., built its mill at Lewiston, Idaho, in 1927, it should be one of the world's

largest. Besides trainloads of lumber, this plant soon was producing 350 tons of sawdust, shavings, and planer waste every day.

Keeping this waste cleared away was a large and expensive job.

1. J. Baker

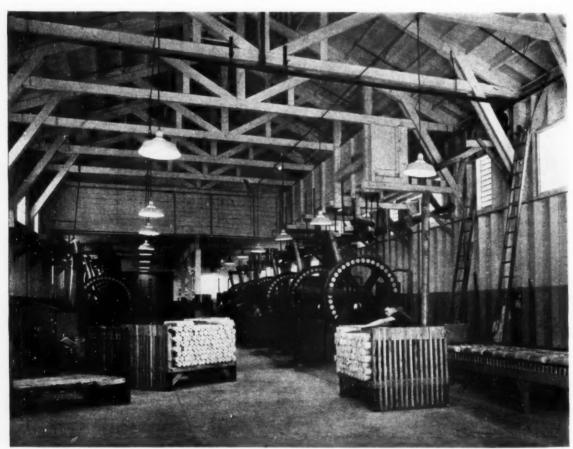
It's easy to build a fire with these fuel logs — just chip off a few pieces for kindling. The logs burn steadily and cleanly and two in a fireplace will give a bundant heat for two or three hours

The intense heat generated within the refuse burner meant occasional shut-downs for repairs. Company officials therefore were receptive to the suggestion of R. T. Bowling, their chief engineer, that he try to find a way to divert this waste into domestic fuel channels, thus creating a new source of income and dispensing with the refuse burner.

To thirty-three-year-old Bob Bowling, born into lumbering, this huge waste of wood always had been a challenge. His father, an electrical engineer, had installed some of the first power equipment in Virginia mills. After two years in college, Bob got a job in an Arizona mill, later going to California, from where he

ter of their fuel blocks to hold them together. In some cases sticky binders were mixed with the sawdust before it was pressed. In the face of many unsuccessful attempts, Bowling stepped to bat, hopeful that a way could be found to make a briquette which needed no string, no wire, no sticky binders, and which could take lots of tough handling when shipped all over the country.

When he located what he thought were the mistakes of his predecessors he began, in true American fashion, to design and build a new machine. It is an imposing monster, weighing 22,000 pounds with all the essential automatic control gadgets, and strong enough to exert a total force of 165,000 pounds.



In the interior of the world's largest Pres-to-log plant—the Clearwater unit of Potlatch Forests, Inc., at Lewiston, Idaho. Here nine of the monster machines are in operation turning out the logs, which a chain conveyer delivers to a racking table seen at the right

came to his present job in Idaho.

His idea of turning mill waste into fuel briquettes was neither new nor revolutionary; yet he found the field wide open. Coke and charcoal briquettes had been successful for some time and the desire—and demand—for briquettes from mill waste already was hoary with age. Many companies in the west had spent considerable money in experimenting, Compressing wood into a compact piece is relatively easy if you apply enough pressure. Making it stay that way when handled as much as fuel must be is something else entirely. To overcome this embarrassing weakness, the earlier briquette experimenters tried string, even wire, in the cen-

Imagine a big wheel about seven feet across, a foot thick, and with forty holes through the outside rim, each hole about four inches in diameter and a foot deep, the thickness of the wheel. These are the dies in which the fuel logs are formed. The big wheel is hollow and cold water flows constantly through its inside.

We start with one of these holes in position in front of a feeder head, inside of which is a powerful tapered screw, similar to an ordinary meat grinder. Into this feeder head goes the waste — previously brought from all parts of the big mill on conveyor belts and ground to a fluffy, feathery mass. As the screw turns, the mass of waste steadily is forced into a smaller and smaller

space. The smashing inside the screw continues until the waste comes out the small end — into the hole in the rim of the wheel — as a thin strip.

Bowling succeeded where others failed because they tried to ram their briquette molds full of wood waste

all at once. Bowling found two separate operations were needed. First, the powerful screw crushes the wood into a thin layer, completely collapsing its cells. Second, the thin smashed strip is fed spirally into the die and further compressed into the fuel log under about 165,000 pounds total pressure. Only by smashing a small amount at a time was he able to get a log which would stick together.

For twenty-seven seconds the serew keeps turning, smashing the fluffy waste into a thin layer and feeding it into the die. The friction developed in forcing the waste through the tapering screw into the mold creates a temperature of 350 to 450 degrees. Loosely, these logs are formed in much the same way as nature makes coal. During ages the pressure generates heat which carbonizes the buried deposits of plant life. In the twenty-seven seconds the pressure is on, this machine does what nature requires thousands of years to accomplish.

The pressure must be closel osely watched, for if it becomes too great the intense heat will burn up the log right in the mold.

Our first log has been formed. Automatically the big wheel turns a notch. bringing the next die into place. The pressed log we have just made remains in the wheel while the other thirtynine holes are being filled. Eighteen minutes later our log

has made the journey around the circle. The cold water has done its work and the log is ready to be pushed out of the die for shipment to market. This eighteenminute trip is necessary to give the log its solidity. Push one out immediately after it is formed and it

will fall apart. Why? That is one of the things Bowling learned by trial-and-error experimenting. He incorporated a big wheel in the machine to achieve continuous production and yet give each log the necessary cooling period in the mold.

Inventor Bowling used to think that resins in the wood were responsible for the stability, but that idea was blasted when rugged logs were made from wood waste from which all but a trace of the resin had been extracted. He has tossed the puzzle before some of the country's top-flight wood chemists. They say that while his machine presses the cells completely out of the wood it has done nothing to the chemical structure. Bowling suspects there may be some reaction between the cellulose and lignin, but he doesn't know.

Mystery may surround what takes place when the fluffy wood waste gets crushed by the 22,000-pound monster but there is no mystery about the markets for the fuel logs that come out. "Pres-tologs," the appropriate name the Potlatch people have given to their product, are going places fast in what generally is considered the most competitive fuel region in the world. In the west every known type of fuel is in active competi-

tion. A tougher market couldn't have been picked. The logs are steadily edging into distant markets.

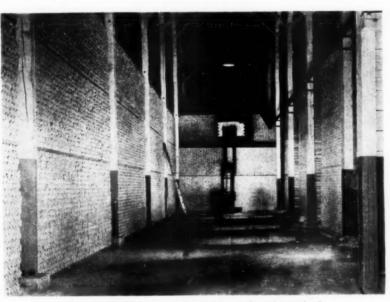
February 1930 saw the birth of the first log. That first year 350 tons were marketed, mostly in the vicinity of the plant. Lewiston, the mill's home city, a town of about 10,-000, now uses 11,000 to 12,-000 tons annually. Fifteen hundred tons was the production in

1931; in 1933 it jumped to 10,000; to 53,000 tons in 1936; 73,000 tons in 1937; and on up the ladder to 120,000 tons — roughly equal to 100,000 tons of the best coal in fuel value — in 1939.

Such a lusty infant was the (Continuing on page 429)



Robert T. Bowling — inventor of the Pres-to-logs machine and its products, who was awarded the "Modern Pioneer" plaque of the National Association of Manufacturers in 1940



A corner of the storage plant at Lewiston, where thousands of tons of Pres-to-logs are stored to meet the greatly increased winter demand, since the logs have become so popular



SECRETARY HENRY A. WALLACE

HENRY AGARD WALLACE, from land-locked Iowa—the agricultural heart of America—Secretary of Agriculture in the Roosevelt cabinet, has been nominated as Vice President of the United States on the Democratic ticket. Simple, genuine, a native American of the type that has given us Andrew Jackson and Abraham Lincoln, he is forceful and a man of real stature with a keen and brilliant mind. Though not politically ambitious, some strange turn of the wheel of fate may prove prophetic the statement—made in 1934: "If the young men and women of this country look to the West for a liberal candidate for the Presidency—as they may in 1940—they will not be able to overlook Henry Wallace." Though not the nominee, he was emphatically the choice of the nominee as a running-mate.

Born on a farm in Adair County, Iowa, in 1888, son of Henry Cantwell Wallace and grandson of another great farmer and farm editor, Secretary Wallace was seeped in the atmosphere and traditions of the farm from early boyhood. When he was graduated from Iowa State in 1910, he went to work on the family magazine —Wallaces' Farmer, which he later edited for five years. A leader in agricultural economics, few men living know farming and land use, past and present, as well as Henry Wallace. When the crisis in our agricultural affairs came, though at heart he hated crop reduction he

HENRY WALLACE

FARMER-CONSERVATIONIST, LOOMS IMPORTANTLY ON THE NATIONAL HORIZON

By LILIAN CROMELIN

recognized it as a necessary evil and so proceeded calmly to use the farmers' language and tell them simply what the revolutionary experiment meant, and successfully sold them the idea of crop production under the "voluntary allotment plan" financed through the processing tax. He showed the individual farmer the advantage of leasing farm acreage out of production, restoring to a profitable basis the whole of American agriculture. He developed better strains of corn by selective cross-breeding and his personal experiments rank with the foremost contributions to genetics in the last twenty years. He applied similar methods of inbreeding and cross-breeding to improve the strains of hogs and chickens, which live largely on corn. His hybrid corns are the leaders in Iowa's corn yield tests since 1926, and are in practical use by farmers throughout the Corn Belt.

His work as an economist for years made it possible for him to give an expert market advisory service to the readers of his magazine; he was able to predict the crash of 1920 in editorials written the year before, and, in 1922, to predict that another crash was due when

American loans to Europe stopped, unless certain steps were taken by the United States.

Since he became Secretary of Agriculture in 1933, he has been active in the development of the "new" Department of Agriculture, — carrying research into action. He is of the opinion that the new Department of Agriculture should furnish machinery which the farmers of the United States can use effectively and continuously to serve the welfare of agriculture and the nation as a whole. He wants the whole Department, old and new, to express itself constantly in terms of action which will best conserve the soil, meet the demand for food and build a farm civilization which will forever serve as the foundation of democracy.

Speaking of the forest in our land economy, Mr. Wallace said: "One-third of all our land is in forest, supporting nearly one-tenth of our population. To keep this land continually productive is our most challenging job of national defense. It is vital to industry and labor, it inspires and re-creates millions of people every year and, most important, it conserves and regulates water, necessary to life itself. . . The essential thing is to obtain coordination of all programs bearing on land use — from the research and fact-finding stage through the educational and planning phases, and into action. This is a mammoth (Continuing on page 425)

CHARLES L. McNARY

AT "FIR CONE" FARM, OREGON, THE REPUBLICAN VICE PRESI-DENTIAL CANDIDATE, IS AT HOME AMONG HIS TREES

By JOHN B. WOODS

SENATOR CHARLES L. McNARY'S notification party bids fair to become a gathering of the whole Pacific Northwest, plus a goodly horde of tourist visitors from other states. The beloved Republican Vice Presidential candidate declared in June that he hoped this party might be held at his farm home north of Salem, among his trees; but already, early in July, it appears that some twenty thousand friends and well-wishers expect to attend. The lawns and gardens at Fir Cone are spacious, but there is scarcely room for such a number; so present plans are to take over the state fair grounds two miles away.

Aside from the important fact that a great crowd can see and hear him there, this proposal has a peculiar merit. The fair grounds are being readied for a centennial pageant of Oregon settlement and history, to be celebrated in early August. Scenie backgrounds and wagon-train props will be in place. Children and grandchildren of the pioneers will be there in authentic costume. For weeks Salem men have been letting their beards grow. Their wives and daughters stroll the wide, sun-washed streets in gingham gowns and bonnets. There's a certain seriousness about it which impresses the visitor. What

could be more fitting than such a setting for the formal acceptance of such a nomination, by the native son whose grandparents pioneered in this valley nearly a century ago?

In 1845, a wagon-train from Tennessee streamed into the lower Willamette Valley, and its members fanned out across the bottoms in search of home sites. James McNary had captained the train over the long Oregon Trail, and when that responsibility was lifted he selected a piece of land near the Willamette River about seven miles south of Portland. His son, Hugh Linza, was nine years old at the time, and grew to manhood knowing plenty of hard work, hunting and fishing, and some schooling.

Another member of the same band, Charles Clagget, pushed southward, upriver, and finally selected his "donation claim" surrounding a wonderful spring of cold water, near the site of Salem, the present State Capital. Tennesseans were clannish then, as now, and there was "a sight" of visiting back and forth along the bottoms, where farms were being hacked out of the timber. The Claggets had a daughter, Margaret, and in due time Hugh McNary came a-courting to the log cabin beside the spring, and there he stayed, building a timber and board house nearby.

It must have been a lovely spot then, for it is so to-



SENATOR CHARLES L. McNARY

day. The same spring-fed creek almost rings it with moist coolness; most of the trees which stand today are so old that they must have been there in 1874, when Charles Linza McNary was born. No wonder, then, that the boy who grew up there and helped himself to college and the study of law, entered politics and finally went off to Washington, loves it and wishes to come back to it whenever the pressure of national affairs eases for a moment. No wonder that he prefaces his discussion of the farm problem with Presidential candidate Wendell Willkie by declaring that he owns the best farm in the country.

Fir Cone is a model agricultural plant, really more a group of orchards than a farm. The soil and sunshine of this Willamette region are especially favorable to horticulture. Those who dared, twenty or thirty years ago, to forsake grain and hops and to pioneer with prunes and cherries, filberts and walnuts, stand ready to back the flavor and appearance of their products against all others. Senator McNary was and is one of these. But the especial charms of his home farm are the unobtrusiveness of its intensive agriculture, the suddenness with which a person can leave the present and go back to pioneer conditions.

Anyone desiring to see the lower Willamette Valley as the settlers must have seen it eighty or ninety years ago need but stroll down along the creek at Fir Cone. Its bed is fifteen feet or more below the level of gardens and orchards; no house nor automobile nor highway is in view. The water is cold, chill enough to satisfy a dozen big trout which frisk about below the spring. On either side veteran trees reach up out of sight. There are big-leafed maples, Oregon ash, an occasional cottonwood, and that earliest landmark of the new settler, the black walnut. But the real monarchs are Douglas and lowland white firs; their tops go to more than a hundred and fifty feet above the stream. Among the thick boles are native shrubs, witch-hazel, cascara, vine maple, rhododendron, Oregon grape and salal, living together as

structures disappeared long ago; only a big red barn remains, lonely, away by itself. While Charlotte, aged five, tried to assemble her pals, three white chickens and a pup, to be photographed, Mrs. McNary talked about Fir Cone.

"Fourteen years ago Charles and I decided to build out here. We felt that what little time we could enjoy

"Fourteen years ago Charles and I decided to build out here. We felt that what little time we could enjoy in our Oregon home should be spent on the farm among the trees. And so we placed the house right there, under those firs. We measured and measured, and do you know, we managed to fit it in among them so neatly that only two had to be cut down."

There is a certain hazard in living under trees which tow-

er more than a hundred feet above one's roof. An occasional gusty wind snaps their tapering tips. It is well to anticipate such an eventuality by topping those which stand near structures, a common practice in the Pacific Northwest. Most of the Douglas and lowland white firs surrounding the McNary house have been topped, but those at a safe distance still reach for the sky. And few people are observant enough to notice the difference.

Although out of sight from the house, the nut and fruit orehards of Fir Cone are extensive. At gathering time, scores of pickers are employed. The earliest crop is cherries, followed by peaches, prunes,



The real monarchs at "Fir Cone" are Douglas and lowland white firs. Here Mrs. McNary, and Charlotte, aged five, stroll beneath their great boughs

The natural forest along Claggett Creek at "Fir Cone". Maples, ash, cottonwoods and black walnuts grow beside the towering firs. Native shrubs are everywhere

Nature intended. Standing in a meadow of perhaps two acres, one really gets the feel of man's smallness. So the settler must have felt, leaning upon his ax and gazing across his small, hard-won clearing. The forest hems you around in 1940 just as it did Charles Clagget in 1850; although actually, of course, the trees occupy only a strip along

the creek. There are two of these low meadows on the place and in one of them Senator McNary has started his arboretum, intending to fill it, eventually, with specimens of every tree from everywhere, which will thrive in this rich soil and mild climate. But it is my guess that he will hold the other meadow open, so as to be able, once in a while, to stand there, knee deep in grass, and recreate the illusion of pioneer days.

The McNary's low, rambling white bungalow stands upon a level peninsula almost encircled by the creek. Years ago the hop-dryer was here, and the Indian hoppickers camped in the meadow below. As we strolled about the lawns and inspected the very large vegetable garden and her row upon row of flowers, Mrs. McNary pointed out the sites of the first log cabin, above the spring, and the frame home farther up the slope. These



filberts and walnuts. Cultivation is constant and meticulous; not a weed or a blade of grass can be found under the trees in this month of July. The output is counted in tons, of each. Senator McNary has found time, God knows how, to devote to experimentation and has a number of improved varieties of fruit to his credit. But that is a story which the forester should leave for the horticulturist to tell.

Those who are wont to search for reasons which underlie human attitudes and actions need not probe deeply to learn why the present senior Senator from Oregon long ago interested himself in forest legislation. His love of the old growth stands on the Pacific slope prompted him to seek a statutory framework for cooperative protection of state and private forest lands, where in the federal govern- (Continuing on page 425)

EDITORIAL



EXTENDED REMARKS

AN EDITORIAL in a recent issue of this magazine appears to have aroused the ire of Hampton P. Fulmer, Representative in Congress from South Carolina, and a member of the Joint Congressional Committee on Forestry which for the past two years has been making a factual inquiry preliminary to formulating a national forest policy. The editorial in question appeared under the title "Breaking the Forest Deadlock." It expressed the opinion that one of the main obstacles to forest progress today is the long-standing deadlock of forest advocates themselves over the question of public regulation and their continued inability to agree upon a program. The Congressional Committee, through its public hearings, it was pointed out, has cleared the way for settlement of the impasse by reducing differences of opinion to a specific major issue. And in the interest of progress, the editorial suggested that all disputants lay aside old scores, including the controversial theme of timber famine, and resolute differences into a common program of forward action.

Just why Mr. Fulmer should take exception to this plea for progress is not apparent but he did. He made it the occasion for extended remarks in the Congressional Record under the title "Somebody is Lying" and launched a sweeping attack against this Association and organizations in general, in which he charged they have but one language and but one program — "more federal money." And the editorial as a whole he branded as an effort to bring pressure to bear on the members of the Joint Congressional Committee and members of Congress to do nothing "to restore and properly preserve our forest resources in the interest of all the people."

It is to be regretted that Mr. Fulmer as a member of the Joint Committee on Forestry should be so badly informed as to the character and viewpoints of the different groups and organizations which have appeared before his committee. Certainly he grossly misrepresents The American Forestry Association, as one or two illustrations will serve to show.

The Association, Mr. Fulmer asserts, is among the organizations which "bitterly oppose any type of regulation as to proper forestry practices," although "every member of the special forestry committee is absolutely for the states having complete control over the regulations and supervision of proper forestry practices." The fact is that in the program of action recommended to his forestry committee by the Association, state regulation is not only advocated but it is proposed that federal aid and cooperation be withheld the states until adequate

measures for the advancement of forestry within their boundaries have been adopted. This position is clearly set forth on page 1769 of the printed hearings of the Joint Committee on Forestry.

Mr. Fulmer says the pitiful thing about organizations like The American Forestry Association "is that the unorganized producers of farm products and the consuming public are paying the bill." If the Association received even a small grant from the federal government or the states, there might be some basis for this assertion, but it does not and never has in the sixty-five years of its existence. It is supported by membership dues and membership is voluntary. No one has to pay a cent in support of its work unless he feels so inclined.

In referring to the editorial statement that the forest survey conducted during the past five years has dispelled the old ghosts of a timber famine in this country, Mr. Fulmer says that the United States Forest Service has "given us an altogether different picture about the serious condition of our forest resources" and that therefore somebody is lying. The official statistics submitted to the Congressional Committee by the Forest Service give the total stand of timber in the United States as 519 billion cubic feet of wood and the annual drain by cutting, fires and insects as thirteen billion cubic feet. As against this annual drain, there is shown an annual growth of eleven billion cubic feet, leaving a net depletion of two billion cubic feet annually-a rate of depletion that clearly does not support the old forestry shibboleth of a national timber famine.

The American Forestry Association welcomes constructive criticism of its policies and of opinions expressed in its magazine. It deplores misrepresentation of them and of the views of others as contributing to the deadlock which the editorial in question pointed out is delaying progress in completing a national program of forestry. In recent years conservation unhappily has gathered its undue share of this species of argument. It has been the Association's policy to take note of inaccurate reflections upon its character and policies only in exceptional cases. Mr. Fulmer because of his high position as a member of Congress is an exception and while we feel that he spoke without adequate knowledge rather than with any intent to misrepresent, it is in the interests of accuracy and fairness to refer readers of his remarks in the Congressional Record to the printed hearings of the Joint Committee on Forestry, on pages 1766-1770 of which is to be found a correct statement of the Association's advocacy of a national forest policy.



WANTED!

The Location and Measurement of the Largest Specimens of the Following American Tree Species

Ash	Dogwood, flowering	Larch	Pine
Mountain	Elm	Eastern	Digger
White	American	Western	Jack
Aspen, trembling	Slippery	Locust	Jeffery Limber
Basswood	Fir	Black	Loblolly
Beech, American	Alpine Balsam	Honey	Lodgepole
Birch Black Paper Yellow	Douglas Lowland white Red Silver Western white	Maple Bigleaf Red Silver Sugar	Longleaf Northern white Pinon Pitch Pond Ponderosa
Buckeye	Gum	Magnolia, laurel	Red
Butternut	Black		Shortleaf
Catalpa	Red	Oak	Slash
Cedar Eastern red Eastern white Incense Port Orford Western red	Hackberry Hemlock Carolina Eastern Mountain Western	Bur California white Chestnut Eastern live Oregon white Pin	Sugar Virqinia Western white White bark Sassafras Spruce
Cherry, black	Hickory	Post	Black
Chestnut, American	Bitternut	Red Scarlet	Blue
Cottonwood Eastern Western	Pignut Shagbark Holly, American	Swamp white White Willow	Engelmann Red Sitka White
Cucumber	Horse Chestnut	Osage orange	
Cypress Arizona	Juniper Alligator	Pecan	Sycamore, American Tulip
Southern	Western	Persimmon	Walnut, black

The American Forestry Association heartily endorses the appeal by Mr. Joseph L. Stearns, on the opposite page, for the discovery and preservation of the largest specimens of outstanding American tree species. Such a conservation activity, it is believed, will have incalculable benefits, not only in stimulating greater tree appreciation, but in establishing a nation-wide laboratory for tree and forestry studies by future generations. Furthermore, these old monarchs, protected from fire, disease and the ax, will stand to the end of their natural lives as cherished landmarks in the sage of America.

The Association, therefore, gladly takes leadership in a national program to locate and preserve the largest specimens of the most important American trees. (To the hundred specified trees listed above others may be added.) Permanent records of these specimens will be compiled and maintained for this and future generations; these records will be made immediately available to the public through the pages of AMERICAN FORESTS. Furthermore, every effort will be made to gain the active cooperation of landowners, lumbermen, and professional foresters and other conservationists, as well as national, state and local conservation agencies.

But the success or failure of this undertaking will rest largely upon the active participation of tree lovers everywhere. Therefore, if you know of a very large tree make it your business to see that its full and accurate record is sent to The American Forestry Association: its identity as to species, its diameter or circumference four and a half feet above the ground, its height, its state of preservation, and, particularly, its location and ownership. If professional assistance for accurate identity and measurements is needed, solicit the aid of your state or local forester, or an experienced lumberman. Also, be sure to send the Association a photograph of the tree and nominate it as a candidate for "Biggest Tree" of its species.

In this way, and with your assistance, it is hoped to establish and preserve not only the largest specimens of our most important trees in the country as a whole, but also in each individual state. When the largest specimens of each species have been definitely determined, The American Forestry Association will issue appropriate certificates both to their discoverers and to their owners. Act now to save the largest specimens of America's trees. Send records and pictures to The American Forestry Association, 919 - 17th Street, N. W., Washington, D. C.

THE GENERAL SHERMAN TREE Largest and oldest living thing. 36 feet 6 inches in diameter at the base. (Sequoia gigantea)

National Park Service

LET'S FIND AND SAVE THE BIGGEST TREES

By JOSEPH L. STEARNS

ONE OF THE most tragic stories in the history of American forests is now in the making. It hasn't been written in its final form, but our children will live to see that day unless something is done. I refer to the gradual disappearance of our most magnificent remaining tree specimens. The giants I have in mind are not necessarily the big redwoods of the West Coast; nor are they the well known famous and historic trees. Such trees are in the main well protected. I refer to the giants scattered throughout our remaining virgin forest stands, most of which are now inaccessible to the public because they are in private ownership.

At this moment I can think of several unusually large oaks, gums, sycamores, and pines that should be given special protection. In one restricted location in southeast Georgia I came across a mill that is, to my knowledge, now cutting the last original growth red bay trees in the United States. When logging operations have

been completed there will be no red bays in the country worthy of classification above shrubs. Shall we sit idly by while this is being done? I believe that a few of our biggest specimens of each tree species should be singled out, marked, plotted on timber maps, and preserved. All lumber company employees should be notified that such trees are not to be cut, damaged by felling adjacent trees. or scarred by careless axmen. Railings should be erected around them: the ground should be cleared of fire hazards for a reasonable distance in every direction, and, when possible, a plowed strip of ground should be maintained as a further fire protective measure. This done, many of our finest specimens could be preserved for their natural lives. Then future generations would be able to see matured specimens of each tree species. If things go on as they are now this will never be possible.

Let me relate the story of a grand old tulip, or yellow poplar tree that fought for its existence for hundreds of years and, finally, through the carelessness of man, crashed to the ground in a fiery blaze one night in 1934.

Back in 1792, when the first settlers made their way into western North Carolina, the mountains were covered with an endless jungle of massive hardwood trees. The principal occupations at first, of course, were clearing land and making homes. But soon the sawmills came—small, crude affairs in those early days. Transportation of logs was by oxen, and the strength of these beasts, contrary to the popular expression, "strong as an ox," was pitiful in comparison to a mod-

ern tractor. For this reason the largest trees were left standing. Equipment then could not handle the big logs. As time went on larger mills made their appearance. These operations brought in overhead skidders and donkey engines, and most of the hardwoods up to six feet in diameter were easy prey.

But up on the steep slopes of Craggy Mountain, fifteen miles northeast of Asheville, there was one lordly yellow poplar that towered above all the great trees around it. No sawmill in the South could have handled such a log without blasting it in quarters, for its trunk was more than twelve feet in diameter, breast high, and not a limb emerged from its straight, massive shaft for a hundred feet above the ground.

Lumbermen in the early days passed this tree by because it was too big to handle. Those in later years would no doubt have cut it, even though they would have found it necessary to (Continuing on page 416)



Southern Hardwood Products, Inc.

All that remains of the world's largest tulip, or yellow poplar. Located near Weaverville, North Carolina, it was killed by fire in 1934

HACKBERRY

Celtis occidentalis (Linnaeus)

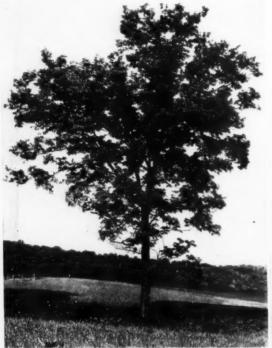
By G. H. COLLINGWOOD

THE RAGGED and often unshapely hackberry of the open grows from Atlantic to Pacific and barely misses reaching into every state. The principal gaps are on the west coast and through the higher elevations of the Rocky Mountains. Best growth is confined to the rich bottoms of the lower Mississippi Valley, where forest trees attain heights of 130 feet and diameters approximating two to three feet. In such cases the trunk is smooth and shapely. Elsewhere the trees are frequently so isolated as to be so difficult

Inconspicuous pale greenish flowers of both sexes appear with the young leaves in April or May on the new growth. The staminate flowers grow in clusters at the bases of the new shoots, while the pistillate flowers grow singly or in pairs from the axils of the upper leaves. Both flowers occur on the same tree.

The dark purple, cherry-like fruits hang suspended on slender stems and ripen in September and October. They remain on the tree throughout the winter, and the sweet orange flesh provides food for various birds. Seed are thus carried miles away from the parent tree, which accounts for its wide and scattered range.

On the trunk and larger limbs the inch to inch and a half thick, light brown to silvery gray bark is broken into discontinuous ridges. Frequently the bark is roughened by irregular wart-like galls which may occur as ridges. On young trees and secondary branches



Devereux Butcher

Open grown hackberry trees branch low and develop ragged, irregularly oval crowns of dense foliage

"Witches brooms" often disfigure the slender branches, the tendency of which is to be horizontal to the main trunk

of recognition as to be called the "unknown tree." Early French settlers even translated the term into bois inconnce.

Belonging to the *Urticaceae*, or nettle family, it is related to the elm as well as to the mulberry and fig. In fact, it is so superficially similar in appearance and size to the American elm that it is sometimes mistaken for one.

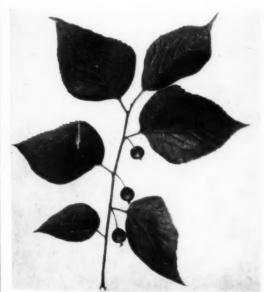
The simple, alternate, coarsely toothed, light green leaves are two and a half to four inches long, with long narrow points. Three conspicuous ribs branch from the lop-sided base. The upper surface is smooth or roughish while below it is smooth and pale. Hackberry leaves are subject to attack by numerous insects including the spiny elm caterpillar. They are seldom, however, the subject of disastrous defoliation.

it is smoother. It is rich in tannin and exudes a gum similar to that found on cherry trees. The numerous, slender branches are generally horizontal, and when grown in the open divide a few feet from the ground. Thick clusters of twigs resembling mistletoe occur on many trees. These are caused by a fungus and are known as "witches brooms."

The clear, light vellow wood is soft and comparatively heavy - weighing about forty-five pounds to the square foot when air dry. The annual rings are marked by several rows of large open pores. It takes a good polish, but is not durable in contact with the soil, and is frequently badly riddled by wood boring insects. Hackberry is usually sold with lower grades of ash and elm, which it super-

ficially resembles. It is hard, but not strong enough or in sufficient commercial quantities for building construction. Offering considerable resistance to shock, it is used for farm implements as well as for crates, boxes, furniture, and to some extent for carving.

Because of its wide range and remarkable tolerance of soil and moisture conditions, hackberry is often planted for shade and ornament throughout the region from the Mississippi River to the Rocky Mountains, and to some extent in other parts of the country.

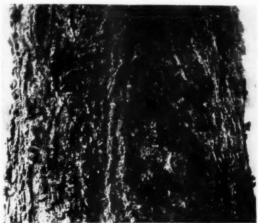


Dark purple, cherry-like fruits hang from the base of simple, alternate, long pointed leaves



Pale greenish flowers of both sexes appear with the unfolding leaves in early spring





U. S. Forest Service

Small, warty galls often add roughness to the light brown to silvery gray bark



Natural range of Hackberry

Let's Find and Save the Biggest Trees

(Continued from page 413)

split the logs in order to move them, except for the fact that by this time a severe heart rot had developed — probably as a result of one of the many forest fires that swept through this country following the first logging operations. At any rate, the tree was not cut, and by some miracle it stood for decades with nothing but a hollow shell as its butt log.

I read about this tree in various lumber and forestry publications as early as 1902, many of the authors describing it as "the largest yellow poplar in the world." So I decided to investigate.

The Appalachian Forest Experiment Station, at Asheville, to my surprise, knew little about this tree. In fact, most of the foresters there had never heard of it. Finally, I found some one able to direct me to the giant, or what remained of it.

At Weaverville, I was fortunate enough to meet Walter Haines, who was quite familiar with the giant tulip. It was about two miles from his place, at the head of Reems Creek, he informed me. For many years, he added, campers, vacationists, Boy Scouts, and others had gone in to see it. As far back as he could remember, which was about forty years, the tree had been hollow. Aside from this, he said, it appeared to be healthy, had a good crop of blossoms each year, and had not been damaged by storms because it was securely anchored in rocky soil and growing in a cove, with high mountains all around. These protected it from the elements. Mr. Haines told me that he could go inside the tree through an open cavity on one side of the trunk and "turn around with a ten foot fence rail" held parallel with the ground. He added that "no shotgun ever made could kill a squirrel out of the top."

On questioning him further I learned that it was a habit for those who visited the tree to assemble in groups inside the trunk, either for purposes of shelter or just as a matter of curiosity. At one time, he bragged, a Scout Troop of forty boys crowded into this giant. Then, one stormy night in the fall of 1934 he

saw a blaze reflected in the sky directly over the location of the veteran poplar. He hurried to the scene with neighboring farmers and found the big tree blazing furiously. There was nothing they could do as the fire had already swept upward 150 feet from the ground. Toward morning, weakened by the fire, the giant toppled with a crash that echoed from one end of the valley to the other.

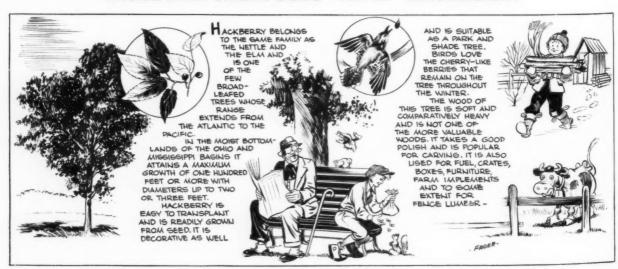
Later, Mr. Haines testified, a local sawmill operator salvaged the top logs from the charred tree and manufactured 6,000 feet of lumber, the wood of which was all curly, a rare thing in this species. Examination showed that the tree had been hollow for a distance of approximately forty feet from the ground, and it was at this point that the trunk broke when the tree fell. The cause of the fire was attributed to a pair of unknown squirrel hunters who had been observed the day of the fire in that section. Ostensibly, seeking shelter, they had built a fire in the hollow trunk. Then upon leaving — the old story — they failed to extinguish their fire. Today there is nothing but a gaunt, broken snag standing where this beautiful tree once flourished. Time and decay will soon remove all trace that it ever existed.

The story of this tragedy has instilled something within me that is too strong to east aside. I believe we should act to prevent similar happenings, especially when they concern the loss of the world's largest specially when they concern the loss of the world's largest special men of any particular tree species. The big yellow popular on Reems Creek is gone, and no one can ever put it back. But there are other outstanding forest giants that are now unknown to all but a handful of people.

Who knows where the largest sweet gum is growing? Is there any one to reveal the location of the giant evergreen magnolias that Sargent describes as being four and a half feet in diameter? How about the biggest dogwood?

If anything can be done to locate, save, protect, and publicize our largest remain- (Continuing on page 424)

TREES AND THEIR USES-No. 52-HACKBERRY





FORESTS OF THE FUTURE



This is one of a series of advertisements published by Weyerhaeuser Timber Co.

The State of Washington is a gigantic Tree Farm of 24 million acres of forest land on which stands 290 billion board feet of timber. A large portion of this forest is virgin timber—trees which are mature or over-ripe. Old age is rapidly overtaking these veterans and what little growth takes place is more than offset by decay. This mature crop is being harvested according to the principles of forest management and its place is rapidly being taken by new growth. In addition to the old growth timber on this Washington Tree Farm there are:

70,919 acres of 100-year old trees, 23,135 acres of 90-year old trees, 121,019 acres of 80-year old trees, 187,816 acres of 70-year old trees, 265,925 acres of 60-year old trees, 212,017 acres of 50-year old trees, 451,596 acres of 40-year old trees.

These thrifty forests are growing up where, long before there were any logging operations, fires burned over the area. Raw material to supply the Forest Products Industries during the period between the cutting of the last old trees and the harvesting of the first new crops, will come from these Forests of the Future.

WEYERHAEUSER TIMBER COMPANY · Tacoma · Wash.

Forest Fire Tragedy in Australia

BY MARVIN KLEMME

DURING the season of 1938-1939 Australia, especially in the states of Victoria and New South Wales, and the Federal Capitol Territory of Canberra, experienced what is without question the worst forest fire tragedy in her history. It is reported that within these states alone more than 10,000,000 acres of forest land burned over.

Somewhere around a hundred people were burned to death; in addition, a great many others died of the intense

dows of his car and drive through the flames as fast as possible. In this manner he was able to get through, although several cars following him were trapped. He said that he was thankful that he was in an American automobile because the English car which he sometimes drove could not be closed up.

The native timber in the area burned was principally confined to various members of the eucalyptus family, of which there are over four hundred. Strange as

stands of mountain "ash"—a species of eucalyptus—were almost completely destroyed. Many of these trees were five and six feet in diameter and of great height. Some species of eucalyptus are thick-barked and will recover from a severe fire, but it appears that the more valuable species are thin-barked and very easy to kill.

Foresters in Australia are confronted with serious handicaps; among them is the age-long fight of forestry versus



Stark destruction in the Australian woods, following the worst forest fire tragedy in her history, when more than ten million acres were burned over

heat which prevailed at that time over much of the country—heat which was considerably increased by the fires. Temperatures as high as 130 degrees were reported back in the inland; along the coast as high as 114 degrees prevailed. Nineteen people died from heat within a week in one little town that I visited.

In addition to the loss of human life, and to the great loss in forest resources, several towns were partly or completely wiped out. Sawmills, farm houses, bridges and mine improvements were destroyed. There were also heavy losses of domestic livestock and wildlife.

Horrible stories are told of people being trapped in their homes by the flames, or of their taking shelter in mines or caves only to be suffocated by the heat and smoke. Others were trapped and burned to death on the roads and highways. A forest officer told me of his being trapped in this manner. He realized that there was only one chance to escape death and that was to roll up the win-

it may seem, stands of this species present a greater fire hazard than stands of conifers. Eucalyptus leaves contain an oil which explodes into a gas when subjected to intense heat, and when fanned by a strong wind such a fire becomes uncontrollable. Stories are told of pieces of eucalyptus bark being blown three miles or more and lighting on the ground still blazing.

For many years, but more particularly since the World War, these states have have been setting out coniferous plantations. Some of these stands were just reaching the age where a substantial revenue could be expected from thinnings. At least thirty per cent of these plantations were reported to have been wiped out. Fire lines, a hundred yards wide, which had been left in all the plantations, were absolutely useless except possibly as a line from which to backfire. Probably the worst losses, from a forestry standpoint, occurred on the City of Melbourne watershed. Large

grazing. Most of the "forests" are composed of rather small blocks of land that are intermingled with the "Crown lands" and various deeded holdings which frequently support heavy stands of timber. The "Crown lands" are leased to the stockmen for grazing purposes. Since the grasses are of a rather coarse variety the stockman feels that it is necessary for him to burn his range off before the fall rains set in if he is to derive the maximum amount of benefit from the land. The forester has no control over these "Crown lands" so there is nothing much that he can do but sit down and wait until the fire gets to the "forest." By that time it is frequently so large that he is unable to do very much with it.

Australia has some good possibilities for the practice of forestry but before any great and permanent progress can be expected a reclassification of her forest bearing lands is necessary. Then will be needed revised fire laws and a modern organization for the detection and suppression of forest fires.

de five eat are a a

ted is

16

16

...but Dynamite came FIRST!





● The smooth roadbed, the train itself, even the car you drive—result from dynamite. Without dynamite, the metals used in these modern improvements would still be in the mine.



● Visit the Du Pont Building, New York World's Fair...and the Du Pont Exhibit at the San Francisco Golden Gate Exposition.

WHILE enjoying the luxurious comfort of our modern trains, the chances are you don't reflect upon what made these mechanical marvels possible. Or what vital force made the roadbed itself. You naturally take all our Twentieth Century developments for granted.

BUT...do you ever consider the vote of thanks you owe to dynamite? Do you realize that dynamite played a gigantic part in the performance of these engineering feats...Truly, dynamite came first!

Where did industry get the metals required for trains, ships, planes, automobiles, and refrigeration and communication equipments of today? From the ores mined by dynamite!

What supplies the concrete used to construct modern highways, your own sidewalks, and the floors of your basement and garage? Rock quarried by dynamite!

And so it goes. On every hand, you see the benefits derived from using dynamite...the builder of America!

Careful research and extensive field trials stand behind every stick of Du Pont Explosives . . . to give assurance of efficiency at lowest cost. If you have any blasting problems, Du Pont vill be glad to render experienced technical assistance.

E. I. DU PONT DE NEMOURS & CO., INC., EXPLOSIVES DEPT., WILMINGTON, DEL.

Septi

acre

von

von

ann

The

den

tair

par

for

nai

em

wh

ah

ya

WE INVITE YOU TO BECOME A MEMBER

OF THE

AMERICAN FORESTRY ASSOCIATION



AMERICAN FORESTS IS SENT MONTHLY TO MEMBERS

ASSOCIATION OBJECTIVES

Adequate Forest Fire Protection by federal, state and other agencies.

Reforestation of Denuded Lands valuable for timber, wildlife, protection of streams.

Protection of Fish and Game and other wildlife under sound game laws.

Prevention of Soil Erosion

Preservation of Wilderness for Recreation Establishment of State and National Forests and Parks

Development of Forestry Practices by the forest industries.

Education of the Public, especially children, in respect to conservation of America's natural resources.

Forest Recreation as a growing need for the development of the nation.

The AMERICAN FORESTRY ASSN. 919 - 17th St., N. W., Wash., D. C.

I hereby apply for membership in The American Forestry Association and enclose \$

INDICATE CLASS DESIRED

	Subscribing Membership, per year	\$4.
	Contributing Membership, per year	10.
	Sustaining Membership, per year	25.
	Life Membership, (no other dues for life)	100.
	Patron Membership (no other dues for life)	1,000.
Ca	nadian Postage 25c extra, Foreig extra, on Subscribing Members	gn 50c hips

City and State.....

Duck Hunting Rules Liberalized

THE duck hunting rules have been liberalized.

Longer seasons, daily shooting to begin at sunrise, and a longer post-season possession of birds are among the 1940 rules for duck hunting announced August 12 by Secretary of the Interior Harold L. Ickes. They are included in amendments to regulations under the Migratory Bird Treaty Act.

The regulations are the first to be announced after a full year of administration of the former Bureau of Biological Survey by the Department of the Interior.

Governing the hunting of all migratory game birds in the United States and Alaska, the new regulations also provide shorter seasons on woodcocks and reduce the bag limits on geese, mourning doves, and white-winged doves.

Duck-population increases for five consecutive years have made it possible, Secretary Ickes said, to liberalize the duck-hunting rules this year, but he added, "we can not yet be sure that the day of stringent regulations is past."

gent regulations is past."
"Our policy," he said, "is to keep the annual kill below the annual production until the carrying capacity of the winter feeding grounds has been reached. Favorable conditions this year, following the five years of successive increases, make it possible now to provide more hunting, but it will again be necessary to invoke tight restrictions if future years are not as favorable."

Secretary Ickes explained that geese have not increased along with the ducks and that it was therefore advisable to offset a lengthened season on these birds by placing the bag limit still lower than the reduced limit provided last year.

A season of sixty consecutive days, instead of forty-five, has been provided in each of three zones for hunting ducks, geese, coots, and jacksnipe. In the northern zone the season will be October 1 to November 29; in the intermediate zone, October 16 to December 14; and in the southern zone, November 2 to December 31. All dates are inclusive.

The northern zone comprises Maine, New Hampshire, Michigan, Wisconsin, Minnesota, North Dakota, South Dakota, Wyoming, and Montana. South Dakota and Wyoming were in the intermediate zone last year.

The intermediate zone this year includes Vermont, formerly in the northern zone; New Mexico, in the southern zone last year; and the following States as previously: Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Pennsylvania, Ohio, West Virginia, Kentucky, Indiana, Illinois, Iowa, Missouri, Nebraska, Kansas, Oklahoma, Idaho, Colorado, Utah, Nevada, California, Oregon, and Washington.

Maryland, Virginia, North Carolina, South Carolina, Tennessee, Georgia, Florida, Alabama, Mississippi, Arkansas, Louisiana, Texas, and Arizona make up the southern zone.

Scoters, sometimes called sea coots, may be taken in open coastal waters only beyond outer harbor lines in Maine and

New Hampshire from September 15 to 30, and in New York, Massachusetts, and Rhode Island from September 15 to 0ctober 15. Thereafter they may be taken in these States from land or water during the waterfowl season.

Daily shooting hours for waterfowl and coot hunters will be from sunrise until 4 P. M., instead of from 7 A. M. to 4 P. M. Jacksnipe may be taken from sunrise to sunset

The daily bag limit on geese, reduced last year from five to four, has this year been lowered to three. The bag limit on ducks remains at ten a day.

As in previous years the number of waterfowl that may be possessed at any time is limited to two days' bag, but a new rule this year makes it possible to possess the legal limit for twenty days after the close of the season instead of ten days.

Special protection, as formerly, is afforded canvasbacks, redheads, buffleheads, and ruddy ducks by limiting to three the number of any one of these species that may be included in the daily bag and providing further that not more than three of this entire group in the aggregate may be taken in a day.

The bag limit on coots is twenty-five a day and on jacksnipes fifteen a day, and as formerly the possession limits for these species may not at any one time exceed the daily bag limit.

Closed seasons throughout the United States and Alaska are continued on wood ducks, Ross's geese, and swans. There is also again no open season on snow geese and brants in Florida and states north thereof that border on the Atlantic coast.

Hunters may use bows and arrows or shotguns not larger than ten-gauge, as formerly. The three-shell limit on repeating shotguns, either hand-operated or auto-loading, is continued, and it will still be illegal to take waterfowl by means of bait or the use of live decoys.

All persons over sixteen years of agrhunting migratory waterfowl are required to have with them an unexpired Federal Migratory Bird Hunting Stamp validated by their signature on the stamp. These stamps, commonly called duck stamps, may be purchased at post offices. They cost one dollar.

The open shooting seasons on woodcocks have been reduced from thirty days to fifteen days, but the daily bag limit remains at four and the possession limit is still eight. Woodcocks also may be possessed not more than twenty days after the season's close. Woodcock losses occasioned by excessively cold weather on the bird's wintering grounds in the south last winter, particularly in Louisiana, made it advisable to reduce the seasons.

The daily bag limit on mourning or turtle doves and white-winged doves has been reduced from fifteen to twelve. Not more than twelve of either species, or of the two together, may be taken in any one day, and the possession limit at any one time may not be more than the daily bag limit. Adjustments in the open seasons on these birds have also been made.

e-n

d

4

١١

at

10

is

1

st

a

of

71

al

el

61

13

S

01

of

FEDERAL NEWS AND REVIEWS

THE addition of approximately 10,000 acres of magnificent sequoia groves, canyons, and forested mountain country to the General Grant Grove of Kings Canyon National Park, California, has been announced by the National Park Service. The signing of a Proclamation by President Roosevelt adds the Redwood Mountain area to the recently created national park.

Inclusion of Redwood Mountain will afford protection to one of the finest remaining virgin groves of sequoia. John Muir, the famous conservationist, was particularly enthusiastic about this section of the Kings country, since its great stand of sequoia lies on a high ridge and is visible from all sides. He advocated its protection by the federal government.

Kings Canyon National Park will now embrace 464,000 acres. Included among its outstanding features are huge domes which tower two-thirds of a mile and more above the surrounding country, great yawning canyons, 13,000 and 14,000-foot peaks, sparkling streams, crystal-clear lakes, spectacular falls and cascades, and a wide variety of animal and floral life.

Cumberland Gap Park Approved

Preservation of historic Cumberland Gap, in Virginia, Kentucky, and Tennessee, authorized by the Congress, has also been approved by President Roosevelt. Establishment of the Gap as a historical park is dependent upon state or public cooperation, under the provision of Congress that the lands to be included therein shall be donated to the federal government before the park may be established. The State of Virginia already has appropriated \$5,000 to be used for preliminary surveys prior to acquiring lands.

The Cumberland Gap area is of prime historical importance as a connecting link between the Middle Atlantic States and the territory west of the Appalachian Mountains. Long before the coming of the white man the early Indians used the trail through the gap as one of the few passes through what was then a barrier of mountains. A section of this "War-riors' Path," said to have been traveled by both Tecumseh and Pontiac, will be included in the park. Later, in the days of Daniel Boone, the Wilderness Road was marked out along the route of the Warriors' Path as a gateway to the trans-Allegheny West. Thousands of settlers passed through Cumberland Gap over this road, which came to symbolize the historic period of westward expansion. Existence and use of the gap was largely responsible for the opening of the Northwest Territory.

National Forest Big Game

Big game populations that have increased to a point where "wildlife slums" are developing on some of the national forests have been reported by the Forest Service in its annual big game "census." Eighty-four of the 161 national forests

each report more than 5,000 deer while forty national forests had more than a thousand elk each and thirty-nine had more than 500 black bear each. The estimate included 19,000 antelope, 59,000 black bear, 700 grizzly and 4,500 Alaska brown and grizzly bears, 477,000 whitetail, 942,000 mule and 238,000 Columbia blacktail deer, 144,000 elk, 7,300 moose, 18,000 mountain goats, 9,150 bighorn, 7,500 peccary or javelina, and 780 European wild boars. These estimates make a total of 1,930,000 big game animals—an increase since 1924 of more than 275 per cent. As the census was made during the early winter of 1939-40, the figures do not include the spring crop of fawns, calves, kids, and cubs, which would bring the total to more than 2,000,000 animals.

On the average, the deer population of the national forests has doubled every ten years since 1908, according to Dr. H. L. Shantz, chief of the division of wildlife management of the Forest Service. It has reached a stage of overcrowding and resulting starvation on a number of ranges, for even with grass knee-high, there is sometimes no food for deer, since they subsist mainly on brush and browse plants. Doctor Shantz said that wildlife specialists throughout the country and state conservation departments in general are giving more and more attention to management of the big game herds and are establishing open seasons on both male and female animals where necessary to prevent starvation.

Wildlife Restoration Funds

Secretary of the Interior Ickes has announced the apportionment of \$2,300,000 to the various states for projects to improve game conditions in accordance with the Federal Aid to Wildlife Restoration Act. Notices of the amounts to be apportioned to each state have been sent to the Secretary of the Treasury and the State Fish and Game Commissions.

Michigan has the largest apportionment, receiving \$127,322. Texas is second with \$120,297, and New York is third with \$120,163. Other large apportionments include Pennsylvania, \$119,218; Ohio, \$102,679; California, \$60,515; and Indiana, \$73,830.

According to the provisions of the Federal Aid act, also commonly known as the Pittman-Robertson act, the sums appropriated for this work cannot exceed the total amount collected under the ten per cent excise tax on sporting arms and ammunitions. In the past few years, this tax has yielded some \$3,000,000 annually. In the fiscal year 1938, when the act became effective, Congress appropriated \$1,000,000 for federal aid work. Last year, it set aside \$1,500,000 for this purpose.

Since the Federal Aid program has been under way, forty-three states have received approval for 310 projects up to June 30, 1940. Seventy-five of these projects are completed.

Remington Announces New and Improved SOFT POINT Bullet

FOR CENTER FIRE SPORTING RIFLE CARTRIDGES



"CORE-LOKT" controlled musbrooming feature now available in soft point type bullets AT NO EXTRA COST!

SINCE the announcement of the Core-Lokt mushroom bullet last year, big game hunters have been loud in their praise of its performance. Now the Core-Lokt feature is available to meet the demands of those who prefer the soft point bullet for big and medium game.

This bullet introduces a new type of notched jacket tip which not only makes it readily recognizable to the hunter, but also provides many advantages: 1-The bullet expands symmetrically, owing to lines of direction induced by the notches of the jacket, for tremendous power and smashing effect; 2-Mushrooming starts immediately and is dependable in both large and small caliber bullets; 3-Bullet core is locked in heavy jacket for minimum disintegration; 4-Mushrooms to twice caliber at hunting ranges. A .30'06-220 grain bullet expands to more than .60 caliber. 5-Ballistics same as regular soft point bullets in comparable weights. "Kleanbore" priming, of course.

Made in all popular sizes, they cost no more than ordinary soft point bullets. Order your stock now from your dealer. For more information, write Dept. 2-H, Remington Arms Co., Inc., Bridgeport, Conn.



"Kleanbore" is Reg. U.S. Pat. Off.; "Core-Lokt" is a trade-mark of Remington Arms Co., Inc.

Please Mention AMERICAN FORESTS When Writing Advertisers

BIRD CITY, by E. A. McIlhenny. Published by the Christopher Publishing House, Boston, Massachusetts. 203 pages. Illustrated. Price \$3.00.
The author, an ornithologist and observ-

er of migratory birds who has devoted much of his life to the conservation of birds, presents an intimate picture of the sanctuary he established for them on his property in Avery Island, Louisiana. Here in the rich alluvial bottomlands of southern Louisiana are sheltered varieties of herons and ducks, and a number of species of land birds. When these leave as winter arrives thousands of northern raised ducks and migratory birds take their place.

The book is written in narrative style and records a personally conducted tour for the benefit of his two grandsons through this great "Bird City."

TREE CLEARANCE FOR OVERHEAD LINES, by G. D. Blair. Haywood Publishing Company, Lafayette, Indiana. 238 pages, illus. Price \$3.75.

Assembling in a clear and comprehensive way for the first time in book form accurate information on wire clearance, the author, who is Forester for the Consumer Power Company, of Jackson, Michigan, bases his text on a study of the problem for over sixteen years. Well written, the book is easily understood and will prove helpful to all who deal with the often complicated questions of shade tree protection in the establishment of public utilities such as overhead lines, roads, streets and bridges. It should be in the library of line and wire companies as well as street and highway officials.

PRACTICAL TREE SURGERY, by Millard F. Published by the Christopher Publishing House, Boston, Massachusetts. 297 pages. Illustrated. Price

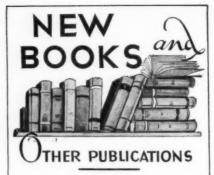
The author of this book, an eminent tree expert, has set forth for the edification of tree owners and various estate caretakers, as well as tree surgeons and would be "tree doctors", a carefully pre-pared analysis of the entire subject of

practical tree surgery.

Not only does he advise concerning various types of recommended tree surgery for different forms of tree injury, but he discusses those species of trees about which most tree men are consulted, giving the most important factors concerning identifying characteristics and distinctive qualities, tree diseases and insects, and improved methods for the control of tree destroving elements.

OIL IS WHERE YOU FIND IT, by Sam Mims. Marshall Jones Company, Boston, Massachusetts. 236 pages. \$2.50.

This is a stirring, contemporary picture of oil - dramatizing the human side of the game and the wild scramble of roughnecks, leasehounds, wildcatters, drillers and landowners to share in the wealth of newly discovered oil in the southern and southwestern districts of the United States.



A list of Selected Books on Forestry and related fields of Conservation is available to members of The American Forestry Association on request.

THE STORY OF WESTERN PINES. Published by the Western Pine Association, 510 Yeon Building, Portland, Oregon.

Interestingly and popularly written, this booklet of sixty-four pages is filled with facts about the protection, growth, and use of western pines. It has been prepared primarily for the benefit of teachers and school children.

Opening with a historical background of the first white pine forest in the East, the story quickly moves to the extensive forests of western pine, the importance of their protection, and the part they plan in American life. The species concerned include Idaho white pine, ponderosa pine, and sugar pine. Over half of the pages are devoted to photographs illustrating growth of species and steps in their conversion into useful products. In view of the fact that the book has been prepared for school use, single copies may be obtained without charge from the Western Pine Association, 510 Yeon Building, Portland, Oregon.

FLORA OF INDIANA, by Charles C. Deam. Published by the Indiana Conservation Department, Indianapolis, Indiana. 1236 pages. Price \$3.50.

Culminating forty years of collecting and research, Mr. Deam, Research Forest-er for the Indiana Division of Forestry, has brought together in a momentous volume the results of his studies of Indiana trees, shrubs, grasses, ferns, flowers, etc. This evclopedia represents, therefore, the most accurate and complete work of its kind published on the native and introduced flora of the state, and contains 2200 range maps of the various species found there. The simplicity with which the subject is presented will appeal to students and all those interested in botany.

The publications listed below must be ordered direct from the addresses as given and not through the Association. Septe

Flor

it h

berg

heer

A

Bak

of t

Flo

whi

vat

tion

hee

for

and

law

seh

Ser

est

pa

in

to

ap Se for he Dr

Ai no eo M

Timber Stand Improvement in the Southwest and Reforestation in the Southwest by CCC Camps. Forestry Publications No. 6 and 7, by G. A. Pearson, Civilian Conservation Corps, Federal Security Administration. Supt. of Does., Wash. D. C. Price 10 cents each.

Forest Increment in North Idaho, by L. J. Cummings and Paul D. Kemp. For. Survey Release No. 18, Nor. Rocky Mtn. For. and Range Expt. Sta., Missoula.

Mont.

The Birds of Buckeye Lake, Ohio, by Milton B. Trautman. Misc. Pub. No. 44, Mus. of Zoology, Univ. of Mich. Press,

Ann Arbor, Michigan. Price \$2.50.
Attracting Birds, by W. L. McAtee. Cons. Bull. No. 1, Bur. of Biol. Survey, Dept. of the Interior. Supt. of Docs., Wash., D. C. Price 5 cents.

Forest Outings, by Thirty Foresters, edited by Russell Lord. Forest Service, U. S. Dept. of Agr., Supt. of Docs., Wash.,

D. C. Price 75c, paper; \$1.25, buckram. Stains of Sapwood and Sapwood Products and Their Control, by Theodore C. Scheffer and Ralph M. Lindgren. U.S. Dept. of Agr., Tech. Bul. No. 714. Supt.

of Does., Wash., D. C. Price 20 cents. National Park brochures: Hot Springs. Arkansas; Grand Canyon, Arizona; Mesa Verde, Colorado; Carlsbad Carerns, New Mexico; Bryce Canyon, Utah: Zion, Utah. National Park Service, U. S. Dept. of Interior, Washington, D. C.

Forest Statistics for Cowlitz County. Washington. Pac. N. W. For. and Range Expt. Sta., Portland, Oregon. Educational Policies for Community Rec-

reation. Published by National Education Association, 1201 Sixteenth St. N. W., Wash., D. C.

Forest Resources in the Tennessee Valley of North Alabama, by James W. Cruikshank. For. Survey Release No. 49 a Progress Report by the Southern Forest Survey. Southern For. Expt. Sta., New Orleans, La.

American Planning and Civic Annual, edited by Harlean James. American Planning and Civic Association, 901 Union Trust Building, Wash., D. C.

Price \$3.00.

Careers - Forestry As A Career. Published by The Institute for Research, 537 South Dearborn Street, Chicago, Ill. Price \$1.00.

A Survey of Research in Forest Land Ownership, by the Advisory Committee on Social and Economic Research in Agriculture, The Social Science Research Council, 230 Park Avenue, New York City.

Forest Resources of West Central Alabama, by A. R. Spillers. A Progress Report by The Southern Forest Survey, Release No. 48. Sou. For. Expt.

Sta., New Orleans, La.

Shortage of Waterfowl, by Ellsworth D. Lumley. Published by The Emergency Conservation Committee, 734 Lexington Avenue, New York City. Price 10 cents. thiesi ons

Itn.

ıla.

fil

dit-

8

ipt.

198

na:

ah.

atu.

and

du-

St.

llen

nik-

ta.,

nal.

ean

901

C.

reh,

go.

and

ttee

in

Re

Vew

Ala-

ress

inr.

spt.

D.

nev

tor

nts.

TS

AROUND THE STATES

HARRY LEE BAKER, state forester of Florida since 1928, resigned early in July. it has been announced. Henry J. Maulsberger, former director of state parks, has been named acting state forester and state park executive pending appointment of Mr. Baker's successor.

As Florida's first state forester, Mr. Baker had much to do with the creation of the Florida Board of Forestry and the Florida Forest Service twelve years ago. Under his administration basic legislation which has greatly expanded forest conservation in the state as well and the func-tion and duties of his department, has been secured. This legislation provided for county-wide organized fire prevention and control; more adequate forest fire laws; the teaching of conservation in the schools of Florida; a forestry department at the University of Florida; a State Park Service under the Florida Board of Forestry; a system of state forests and parks; a forest lien to safeguard the state in its investment in forest fire protection, to mention the most important.

Mr. Baker was formerly associated with the Virginia Forest Service and the North Carolina Forest Service. In 1926 he was appointed by the United States Forest Service as forest inspector in charge of forest fire investigations. Two years later he became Florida's first state forester. During 1934 and 1935 he was president of the Association of State Foresters, the first president of the Association to serve

New Wildlife Secretary

At Washington, D. C., the appointment of J. Paul Miller as secretary of the American Wildlife Institute was announced August 9 by Frederic C. Walcott, president of that organization. C. M. Palmer, Jr., who resigned as secretary to enter private business, has accepted an appointment to the Institute's Board of Trustees. The change will be effective September 15 when Mr. Miller can be released from his present duties with the Fish and Wildlife Service, Department of the Interior.

The new secretary of the Institute graduated from Washington State College in 1929. He majored in biology and premedies, minored in education physics and botany. Later he conducted studies on the relationships of birds of prey and mammal pests, bobwhite quail, ringneck pheasants and Hungarian partridges in the Palouse region in the state of Washington. In 1930 he resigned a teaching fellowship to accept an appointment with the Biological Survey, which has since been supplanted by the Fish and Wildlife Service. With the Survey, Mr. Miller was detailed to New England to establish field offices in cooperation with the Northeastern Forest Experiment Station. There he conducted a study of the relationships be-

tween birds and mammals and the white pine weevil and the white pine blister rust.

Douglas Fir Region Fights Fire

The forest owners and operators and forest products manufacturers of the Douglas fir region of Washington are cooperating with the State Division of Forestry this summer in waging total war on forest fire. An educational department has been set up in the Forestry Division, with Stewart Holbrook, former logger and well known author, as director.

Governor Clarence D. Martin launched the summer program with an official proclamation urging all citizens to rally under the slogan, "KEEP WASHINGTON GREEN," and calling for a meeting of all interested groups and individuals at Olympia. More than 300 representatives of the state's principal business and civic organizations and governmental officials attended

While the program is under the complete control of T. S. Goodyear, state for-ester, it is being financed by the forest industry of the state. This is the first cooperative effort of its kind ever undertaken. While West Coast lumbermen expend over a million dollars a year on forest protection, they, with state and federal forestry officials, have little control over the forest-using public-the tourists, hunters, fishermen, berry-pickers, campers and others who have been responsible in the past for most of the man-caused fires in the second-growth forests. Such fires have been passed off as "brush fires." The damage they do and the danger they raise have not been recognized.

North Carolina Meeting

The appointment of William L. Beasley, a recent graduate of the Duke School of Forestry, at Durham, as field secretary of the North Carolina Forestry Association was announced at the thirtieth annual meeting of that organization held recently at Raleigh. Colin G. Spencer, of Carthage, was reelected president. L. R. Foreman, of Elizabeth City, was named vice-president, and R. W. Graeber, of Raleigh, secretary-treasurer.

With the production of 1,370,503,000 board feet of timber in 1938 from 18,-395,000 acres of forest land, North Carolina led all southern states in timber production, and ranked fourth among all the states, E. V. Roberts, regional forest survey director, reported to the meeting. The saw timber volume of the southern coastal region having increased during 1937 by 93,000,000 board feet, with an average net annual increment of 128 board feet an acre, Mr. Roberts prophesied that "if the drain does not greatly increase in the next ten to fifteen years, the constantly augmented growing stock will then produce an annual increment sufficient to justify an expansion of the wood working indus-



UNITED STATES FOREST SERVICE HAT

Stetson puts out a sturdy felt ... to give lasting service... to stand strenuous outdoor wear, yet hold its shape. No wonder Stetson hats are official for the U.S. Foresters, many state police, Canadian Mounted Police, and active services all over the world.

JOHN B. STETSON COMPANY PHILADELPHIA, PA.



You may have this new MANUAL

free by mentioning American Forests Magazine

"A most practical book about the most practical fire-fighting method" — profusely illustrated and crammed full of vital facts. Written for the U. S. Forest Service by a man who knows fire and its attendant problems. If you have fire hazards, be sure to

WRITE TODAY!

Pacific Marine Supply Co. Fire Fighting Equipment Division SEATTLE, WASHINGTON

DoYou Know Wood?

THE WOOD STUDY KIT

Do You Know Wood 7
Do You Know Trees
Do You Know Leaves

KnoWooD — The Wood Study Kit — answers these questions. KnoWooD is a collection of 24 species of American COMMERCIALLY used woods, packed in a handy, reinforced carton. Each piece of wood, 23/4" by 23/6" in size, is typical of the species represented.

A KnoWooD bnoklet accompanies each Kit. This booklet contains 24 plates with authentic reproductions of leaves and seeds to scale, and concise descriptions of the tree and the wood itself. The geographical distribution of the trees and the commercial use of each species are indicated.

Corresponding numbers on plates in booklet and on wood samples help in identifying and studying each species.

Recognized authorities, in botany, timber and lumber, and practical wood workers have cooperated in creating and preparing KnoWooD. As an authentic Wood Study Kit, it is invaluable to young and old, to the nature lover, the student, and the practical user of wood. It is ideal for the Boy Scout and Girl Scout.

WOOD SAMPLES INCLUDE:-

Red Oak White Elm Red Gum White Oak Cypress Northern White Beech Cedar Yellow Poplar Western Red Cedar Norway Pine Douglas Fir Western Pine Yellow Birch White Pine Basswood Sugar Pine Spruce Yellow Pine Hemlock Tennessee Red Sugar Maple Cedar Shagbark Hickory Magnolia White Ach

KnoWooD — The Wood Study Kit

COMPACT - STURDY - PRACTICAL

THE AMERICAN FORESTRY ASSOCIATION

919 17TH STREET, N. W. WASHINGTON, D. C.

Hurricane Benefits Wildlife

(Continued from page 404)

reduce excessive fire hazards. Slash conditions created in the woodlands constitute not only a serious fire hazard endangering both human life and remaining forest cover, but a menace to forest wildlife as well. Not even unregulated hunting can be more devastating to wildlife than great forest fires.

The great material losses resulting from the storm stimulate one to consider the possibilities of duplicating its beneficial effects under controlled conditions. We do not need windstorms to create productive habitats. Intelligent environmental improvement by man is obviously less expensive and far more beneficial than are conditions created by high winds. Under certain conditions, openings created in

large tracts of timber are not only good insurance against fire and insect pests, but may be a definite additional source of revenue to timber owners.

The owners of small farm woodlots may find, too, that the income from increased annual crops of wild game is the startling difference between profit and loss, merely by providing for or allowing forest food and shelter to establish itself within the woodlot. Thus, in a less spectacular manner, we may duplicate the wonders wrought by New England's greatest hurricane; and progressive timber owners may, with nature's vivid lesson to guide them, proceed upon a more sound basis of forest management and wildlife conservation.

Let's Save the Big Trees

(Continued from page 413)

ing tree specimens, in each species, now is the time to act. Lumbermen, foresters, naturalists, and tree lovers can devote attention to this urgent matter. And it is urgent! For example, down in Louisiana there is a big black gum seven feet in diameter at breast height. It is located on a tract of timber scheduled to be cut soon. This giant might be saved by an appeal to the lumbermen who own it. It is altogether possible they do not know it exists: and more than likely once they are aware of it, they would take pride in preserving what possibly may prove to be the largest black gum tree in the world.

So here is a challenge to every individual tree lover, to every forest conservationist in the country; to every forester, to every lumberman; to farmers, vacationists, to all who come in contact with trees, particularly forest trees. The first task, of course, is to locate the largest specimens of our major species - a happy task in which everyone going into the woods can participate. Then concerted action to bring about the protection and preservation of these great old giants. If an organization is necessary to accomplish this, then let's organize. Or. and this might prove more immediately effective, let every tree lover, every forester, every lumberman rally behind some established national forest conservation organization able and willing to fight for the preservation of our biggest tree specimens.

Redeeming Shasta's Waters

(Continued from page 399)

of Biological Survey to make such uses of the impounded waters for fish culture stations and migratory bird resting and nesting areas as are not inconsistent with the primary use of the waters and/ or the constitutional rights of the states."

Thus, extensive biological studies can be made to determine the stocking policies and problem of fish management. Naturally, all species of game fish now found in the streams above the dam site will become inhabitants of the reservoir. The type of fish to be planted, the effects of extreme temperatures and the fluctuation of the water level are all problems to be worked out. Indications are, however, that fishing, although limited to inland types of game fish, will be enlivened by a land-locked type of steelhead.

Nor will the hunter or outdoor lover be

neglected. To compensate for the barrier of the reservoir, emergency feed will be provided for the 100 to 150 Yellowstone elk, increased from the fifty-eight released a score of years ago, and the herbof Columbia black-tailed deer. Also, the reforestation plans make provision for the planting and reservation of winter feed such as oaks and palatable brows. In addition, a program for stocking the area with grouse, wild turkeys, valley and mountain quail and other game birds is expected to be tied in with the program.

All in all, it looks as though when the huge project is finally completed everybody will have what they want. The farmers along the Sacramento River wilh have protection from drought and floods the fishermen will have their fish; the hunters will have their game; and all will have the forests. There is more to building a dam than meets the eye.

1940

ood

of

ing

the

ian.

ders

hur-

ners

s of

ster.

first

gest

han

the

rted

and

ants.

26

Or

iate

hind

ser-

g to

gest

tone

re

erds

, the

for

inter

WSP

the

and

ds is

ram. a the verv

The will oods: will uild-

Charles L. McNary

(Continued from page 409)

ment could assist without weakening the initiative of the assisted. His observation of how valuable woodlots can be to farmers, but how frequently they are abused or destroyed, is back of an insistence that similar federal cooperation be applied to woodlot planting. He has long been a staunch supporter of the national forest system. The Clarke-McNary Act of 1924 enunciates the principle of federal cooperation and bears witness to the assertions here made.

The forest industries have long been the keystone of the Pacific Northwest's economic structure. Research, both as to raw materials and finished products, is

vital to these industries and in its broad aspects may properly be undertaken by government. As a result of the Mc-As a result of the Mc-Sweeney-McNary Act of 1928, a dozen forest experiment stations throughout the nation and a world-renowned forest products laboratory at Madison, Wisconsin, have been put to work to improve the techniques of growing and harvesting timber and to increase the uses of its prod-

Bearing these things in mind, it is not difficult to understand why Senator Mc-Nary is considered the outstanding proponent of legislation to establish a sound national forestry policy.

Henry A. Wallace

(Continued from page 408)

cooperative enterprise, in which farmers, forest owners, educators, and local, state and federal officials are taking part . . . forest users are doing a large share of the work. The Forest Service, because of its experience in forest management, its philosophy of service, and the farflung decentralized character of its organization, is making a major contribution toward helping these local people to find and effect solutions to their land use problems.

"Damage to the land is important only because it damages the lives of people and threatens the general welfare. Saving soil and forests and water is not an end in itself; it is only a means to the end of better living and greater security for men and women. Human conservation is our first and greatest goal.

"Whether or not forests can be cut at a profit, they help prevent erosion and floods and the enormous and recurrent damage they do. . . . The forest resource provides shelter and food for stock and livestock. . . . There is an urgent need for a broad, constructive forest policy for the nation - an economy based on restoring forest land and keeping it in productive use. Such an economy would bring added security and stability to industry, labor, agriculture and commerce. ... In Europe and Asia men again have resorted to wholesale destruction, partly because they lack resources such as we have. . . . The forests of the United States are making large contributions to national defense. But the nation has not provided adequately for defense of the forests. . . .

From the forests come materials indispen-

sable to defense-materials for gas masks, guns, explosives, chemicals, airplanes, hangars, cantonments, ship building, motor trucks, shipping crates and packages and many other kinds of essential de-fense equipment. By chemical and physical research wood can be made even more useful in efficient, speedy, economical production of defense material. We well learned that lesson twenty-five years ago. . If the United States is to avoid the route older nations have taken, we must solve our own economic and social problems and strengthen internal as well as external defenses. Our land and soil, whether forested or cultivated, over the long pull is our first line of defense.

"We must stop heedless abuse of natural resources like land, water and forest for they are the sources of our life, as well as sources of raw materials and income and places to work. Our most challenging job of defense is not the building of tanks and anti-aircraft guns - necessary as they are - but the building up of the nation's natural resources and keeping them continuously productive.

"The truth is that this nation's need is for a master conservation plan - a plan to save our natural resources that is conceived with realism and prosecuted with patriotic fervor. Great progress has been made in the battle to save our soil, our grass, our trees and our water. But the battle is far from won. In reality we have just begun to fight." Heartening words to those in the forest and conservation camps from a public official of whose sincere purpose there can be no doubt.

The Quickest and Easiest Method of Setting **Back Fires**

CENTRAL FOREST FIRE TORCHES

Central Forest Fire Torches provide the most efficient and economical method of setting back fires in fighting forest fires. They project an intensely hot yellow flame over which you have absolute control. Burn for either 10 or 20 minutes and equipped with friction cap ignition - no matches required. A sapling can be inserted in the tin ferrule for a long handle, eliminating the necessity of stooping to light each fire. Packed in handy slide-cover wood boxes.

Your fire fighting equipment is not complete without them. ORDER A TRIAL BOX

#410—10 min. Box of 24—16 lbs. #420—20 min. Box of 12—13 lbs.

CENTRAL RAILWAY SIGNAL COMPANY INC.

NEWTON, MASSACHUSETTS



FOR INVENTORS INVENTION RECORD FREE
Write today for valuable 72-page bookiet, "Iflow to Get
Your Patents" and "Record of Invention" form—both free.
L. F. RANDOLPH, 586 Vieter Bidg., Washington, D. C.

NS SILVER STEEL

RIGHT! IN THE GROOVE

E. C. ATKINS & COMPANY — 413 S. ILLINOIS ST. — INDIANAPOLIS, INDIANA



Norway maples line Hereford Drive in Akron, planted in 1921

YOUR SHADE TREES

AKRON'S STREET SHADE TREE PLAN

By H. S. WAGNER

TO the stickler for precision the very title of this article may appear misleading. So, in beginning, let me say that the plan, which might well be emulated by other cities, has not been used in the Ohio city for the past thirteen years. Having its origin in 1921, it was standard practice for seven years on every residential street paving job. The plan was in its prime in 1925-26 when residential construction was moving with unprecedented speed. The decline of its use came with the rapidly advancing prices of that period; with the depression and the dawn of tax-payers' strike it was abandoned. There is and has been for at least the past five years, a genuine need and no little, albeit spotty, demand for its rejuve-nation. The slow but steady growth of tax-payers' recognition of the sound principle of the true beneficiary paying the bill, will revive the use of the plan here and possibly elsewhere. Judged according to any standard, the street trees themselves stand as proof of the soundness of the plan.

Akron is a home rule city. Section 120 of the charter covers the authorization of special assessments. In addition to the customary functions and features built and operated by cities and paid for by special assessment, the charter authorizes "the planting and care of shade trees" in the lawn strips of the streets of the city. It would have profited, and it would still be progressive and economical had more attention been paid to the words "and care of," as we shall see later on.

Two other sections of the charter specified the kind or species of shade trees permitted to be planted on city streets and restricted their location. The latter section does not appear to have had any very easily discernible effect upon the location of the planted trees. On the other hand, the list of twenty-eight species is extensive enough for all practical purposes. Species known to be impractical for street planting have been excluded. A great deal of good has been effected by the prohibition of willows and poplars, the silver maple and box elder. I recall only too well the job of cleaning up the streets of the town after the tail-end of a tornado spent itself in this neighborhood. Two-thirds of the debris was made up of silver maple brush. To a huge volume of small branches were added many truckloads of heavy branches, as well as whole trees which were completely up-rooted. These trees were planted by some of the early real estate developers, before the new charter provisions were in force. There were few willows at that time and only a sprinkling of poplars; nevertheless, willow and poplar brush made up most of the balance of one-third of the tree debris. No single oak was badly damaged or uprooted in that storm. For these reasons, I believe that the section of the charter which carefully limits the species to be planted is one of the strong points of the Akron plan. Not a tree of any of the undesirable species has been planted for years.

As far as can be determined, the charter sections on shade trees were dormant until 1921. Then came a residence building boom of exceptional proportions. Subdivisions of farms and other acreage on the fringe of the city became general.

New homes were most common on unpaved streets in new "allotments." Akron ranked high among American cities in the matter of owner-occupied, single-family residences, and these owners descended upon the City Highway Department with petitions for street paving. Then followed a paving program without precedent, with the property owner paying up to ninety-eight per cent of the cost of the work.

ta T th mth T w sp ain p

Pavements of brick or asphalt, bordered by sandstone curbing, were designed and built. In most cases sidewalks to grade, five feet in width, had been built by the real estate developers, in conformity with the regulations of the City Planning Commission. Thus were created the tree lawn strips from six to seven feet wide, between the sidewalk and the curb.

In the beginning, and before the planned planting was undertaken, originality and novelty were displayed in the preferences of the home-owners for trees. But this haphazard planting did not continue for long. City officials, particularly



Tree lawns on Weber Avenue were planted to pin oaks, also in 1921

the late Charles F. Fisher, city planning engineer, and E. A. Kemmler, city highway engineer, saw the need of uniform planting and actually worked out the details and put the plan into operation. There seemed to be no good reason why the contract for planting could not be made a part of the general contract for the construction of the pavement itself. That idea was put into effect. Reliance was placed on a rigid set of planting specifications, and these specifications were adopted by the City Planning Commission in June, 1920. These details of the Akron plan are, I believe, innovations.

As to specifications, they remain a part of the printed booklet which is used on all highway contracts today, and they may be secured from officials of the Highway Department of the City of Akron, or this writer. Slightly more than two pages are used to cover the sub-headings, plans, variety, condition of stock, care of trees, pruning, planting, excavation, tree guards.

replacements and payment.

cepted technique; knife and saw are "recommended" in preference to shears, and "long handled tree pruners" are pro-This section requires that all pruning of the head shall be confined to cutting back the ends of branches in the growth of the previous year.

The last sentence of this section was found to be extremely helpful to the inspectors in directing the pruning of trees with well-shaped heads, which had to be done by untrained laborers for the most part. Moreover, this section made it easy to prevent the mutilation of ill-shaped trees in attempts to give them symmetry. The section on "Planting" called for delivery in a dormant state, planting within ten days after arrival on the job during the months of March, April, May, Octo-ber, November, or December, and stipulated cessation of planting when the temperature was less than 25 degrees Fahrenheit. This section was not difficult to enforce, following, as it does, the rule of reason and general practice.



Nineteen-year-old pin oaks on Ruth Avenue in Akron

The section on "Plans" is a simple contractual statement. The section on "Variety" will be covered in a subsequent article in AMERICAN FORESTS, which will also survey the accomplishments of the plan in detail. "Condition of Stock" calls for nursery grown trees, the naming of the source of the material, and reference to specifications of the American Association of Nurserymen. Caliper, height of lowest branches and symmetry of head, as well as well-developed fibrous root systems are specified. This short section seemed to be wholly adequate in practice.

Of course, the attempt to supply collected stock was not a factor where exotic species were called for. This led to the feeling, and actually to the practice, mistaken though it proved to be, of specifying exotics-Norway maple being the dominant one. "Care of Trees" covers heeling in between arrival and planting. The section on "Pruning" is extensive enough to insure the application of ac-

In my opinion, the section on "Excavation" was the most important. Holes had to be two feet deep and four feet in diameter, or of equal cubage. A cubic vard of sandy loam had to be supplied to replace the excavated material. This was the detail which was most difficult to enforce. It seemed that all contractors were experts on soil or that all streets must have been laid out through farms which were two feet deep in topsoil. Actually, the park lawn was invariably of subsoil fill, or cut into subsoil. In this rolling terrain very few streets, in the grading operation, boasted any tree lawns on the original grade. This section could have been improved greatly by following out the principle in the section on "Condition of Stock." It should have specified that the contractor must indicate the source of all topsoil before filling the tree holes.

Under this same section actual planting was specified. The roots of the trees had "to be moistened so that the soil will ad-

FREE BOOKLET

Describing INSECT CONTROL on SHADE TREES

The widespread use of "Black Leaf 40" as a control for certain destructive insects is due to its unusual efficiency. It is also compatible when combined with any standard spray material which does not cause injury to plants when used alone. Because "Black Leaf 40" kills both by contact and by fumes, its efficiency is thereby increased. A twenty-page booklet listing insects controlled with "Black Leaf 40" and dosages required, will be sent free upon request. Your local dealer can supply your "Black Leaf 40" needs.

For free booklet TOBACCO
BY-PRODUCTS
& CHEMICAL
CORP.
Incorporated LOUISVILLE, KY.



TREE SEEDS

FOR FORESTERS and NURSERYMEN Ask for Catalog

HERBST BROTHERS

92 Warren Street, New York City

Trees for Forest Planting PINE-SPRUCE

Firs, Arborvitaes and Other Conifers. We raise all our trees in our own nurseries.

KEENE FORESTRY ASSOCIATES KEENE, NEW HAMPSHIRE

PUT YOUR MOUNTAINS TO WORK WITH TREE CROPS

Reforest with select species of oaks, with acorns, nuts, persimmons, honey locust, etc., tha crops for man, beast, and wildlife.

Annual profits will make the timber seem a by-product. Europe and the Orient have done it for cen-turies. Consultations and surveys on request. Write me.

JOHN W. HERSHEY America's Foremost Tree Crop Consultant Downingtown, Pa.

FOR FOREST PLANTING

Spruce, Red Pine, White Pine, Sestah Pine, Spruce, Celerade Blue Spruce, etc. Prices are ble and the trees are GUARANTEED TO LIVE. WESTERN MAINE FOREST NURSERY, DEPT. F. Fryeburg, Maine

S



here, etc." Liberal interpretation was accepted by all contractors and puddling in clay mud was the rule in practice. A six-inch mulch of straw manure over the four-foot diameter hole was called for. The section on "Tree Guards" referred to a plan which called for a heavy gauge wire guard, galvanized after fabrication and held in place by galvanized staples to two hardwood posts. The posts were two and a half inches square and eight feet long, driven three feet deep on opposite sides of the trees, twelve inches apart. The open guard was bent into a cylinder by closing the eyes on the horizontal wire ends.

The guards never did prove worth their They were used to hold the newly cost. planted tree upright in place and to protect it against damage by small boys and The ice wagon was displaced by horses. the electric refrigerator, of course, and the milk wagon and other horse-drawn vehicles disappeared in favor of the automobile. There were no horses to chew up the trunks of the trees. And the small boy turned to model planes in his desire to temporarily explore the region above terra firma. Ripley may soon discover a boy climbing a tree-I haven't. Anyway, it became necessary to suspend the tree between the two sides of the wire guard by a burlap and later by a double wire tie, protecting the tree by covering the wire with rejected rubber hose. specifications did not cover that detail satisfactorily and not a little damage was done to trees by the chafing of the metal guards. A single post and tie, with a small amount of regular inspection and correction, would have been much cheaper and more effective.

The section on replacements was effective, on the whole. Losses had to be replaced during the two year period of guarantee under the contract for the entire paving job. Some difficulty was encountered when contractors refused to do more than originally plant and replace just before the two years expired. Thus a tree which died at planting was not replaced for approximately two years. The guarantee might well be for a two year period and the stipulation that all trees dead at the beginning of any and all planting seasons must be replaced immediately.

(In the October issue, Mr. Wagner will continue his presentation of Akron's Street Shade Tree Plan.)

USE OF STATE FORESTS

Varied uses of the 13,400,000 acres in state forests are outlined in "State Forests for Public Use," a new publication by the Forest Service, Department of Agriculture. Thirty-nine states now have state forests, and the bulletin points out that the state areas supplement federally owned national forests in forming a nationwide system of publicly owned lands managed as "perpetual forests."

TWO OUTSTANDING BOOKS

KNOWING YOUR TREES

G. H. COLLINGWOOD

\$1.00

A book on trees which contains actual photographs of each tree, and of the leaf, bark, flower and fruit. It contains 500-word descriptions of fifty of our best-known American trees—the natural range, commercial uses and identifying characteristics peculiar to each tree. Simply written and handsomely illustrated, it is the ideal book for the young or the old tree lover.

AMERICAN CONSERVATION

OVID BUTLER

\$2.50

This volume presents a clear picture of America's organic natural resources, the part they have played in the development of the nation, the manner and consequences of their use, and the spread of the conservation movement from its beginning in the United States down to the present time. More than 200 pictures and brief paragraphs tell the story.

Order from

THE AMERICAN FORESTRY ASSOCIATION

919 17th St., N. W., Washington, D. C.

Measure the Amount of Timber on Your Southern Pine Woodland or Forest with a Specially Designed

LOG-SCALE STICK and TREE-SCALE STICK



—Tell how much lumber in board feet your logs will saw out by careful saw-milling (the International Log Rule, also what they scale by the Doyle Rule.

-Tell how many 16-foot log cuts there are in standing trees.

—Estimate the contents in board feet (by the Doyle Rule or the more accurate International Rule), of standing trees of the Shortleaf, Longleaf, Slash or Loblolly Pines.

\$1 a set, postpaid, including canvas container and book of instructions.

THE AMERICAN FORESTRY ASSOCIATION

919-17th St., N.W. Washington, D.C.

KINGDOM OF THE TREES

BY ERLE KAUFFMAN
Associate Editor of American Forests, Educational Director, The American Forestry Assn.



67 beautiful

Chart for tree

EVERYTHING ABOUT TREES!

Children love to learn all about trees. In this beautiful, authoritative book they can learn what kinds of wood are used for boot keels, airplane parts, etc., the history of trees and other fascinating information.

Size 8% x 11 inches. 128 pages.

"What a splendid foundation for the formal teaching of conservation!" says Shirley W. Allen of the School of Forestry and Conservation, University of Michigan.

Entertaining, instructive. For children 8-16

PRICE \$2.00 POSTPAID

The American Forestry Association

919 17th St., N. W., Washington, D. C.

Wood Waste Magic

(Continued from page 407)

new fuel log business that other large western lumber mills with waste problems sought the machines. To handle this new angle, a subsidiary company called Wood Briquettes, Inc., was formed. Both the machine and the process were patented and this company leases the machine and the process to interested mills.

Thirty-four machines-fifteen in Idaho, twelve in Washington, six in California. one in Oregon-cooperated in producing the 120,000 tons in the west in 1939. This year a machine goes to Nevada to join the parade. One machine is in South Africa. Another was ready to go to Australia when the European war interfered.

The trail of the 120,000 tons of sawmill waste put through the machines last year leads to many destinations. Half a dozen railroads use the fuel logs in their dining car galleys, particularly on the stream-liners. Many steamship lines use them; a western line is one of the biggest customers. Another sea-going use is on private yachts along the Pacific Coast. Clean. safer than gasoline, the Pres-to-logs are stored in the same compartment with food.

Housewives have been won by its cleanness, in handling as well as burning. Its makers claim it is the cleanest solid fuel there is. Buying a few logs at a time, housewives keep them in the kitchen, pantry, or in the hall closet, knowing there is no danger of pitch, dirt, or slivers. In burning there is no dirt, no smoke, no soot, no sparks-you don't even need a screen in front of the fireplace-no odor, no clinkers, and practically no ash (less than one half of 1 per cent). Because of their cleanness they are finding growing use as fuel in milk pasteurizing plants.

The fact that this new fuel sets a new standard for cleanness has opened an entirely new field of retail distribution in the west. In many large cities the logs are handled by grocery stores, neighborhood stores, and by ice companies. In the San Francisco Bay area alone thousands of such dealers handle this new fuel. They cater mainly to the small users, who buy only a few days' supply at a time.

Another feature of this fuel is its amazing uniformity. When a housewife learns from experience what half or two-thirds of one log will do in cooking a meal, she ean always count on that much of a log doing the same thing the next time, and every other time. Its makers claim a uniformity in heat value and evenness of burning not possessed by any other solid fuel.

These logs respond admirably to regulation. Shut down the damper on the stove or furnace, and they will burn uniformly at a snail's pace for hours. For furnace use a minor alteration is needed to reduce the draft. One log will heat thirty gallons of water to 180 degrees and will last several hours in a properly constructed water heater. Two logs in a fireplace will burn steadily and throw out abundant heat for two or three hours.

Everybody in the United States with a fireplace is a potential customer for these logs, particularly the one that burns with a colored flame, blues, green, and violet

predominating. When Bowling got the idea of a special colored-flame log for the Christmas season, he went to Dr. E. C. Jahn, director of the wood utilization laboratory at the University of Idaho School of Forestry, who prepared the chemical mixture. Yes, these are called "Rainbo logs." Last year these coloredflame logs went to market in six middle western states and in New York and New Jersey in addition to western markets.

You never can tell where you are liable to encounter some of these new logs. Last summer, far back in St. Joe National Forest in Idaho, amid forest abundance, I came upon a cabin with a pile of the solid sawmill waste logs on the porch.

Talk about carrying coals to Newcastle, the Potlatch company even takes them back into its own logging camps in the central Idaho forests to burn in the cook stoves. It is more economical and efficient to do this than to cut wood. Although donkey engines have practically vielded to diesel power in logging, whenever Potlatch finds it necessary to use an old-timer, Pres-to-logs are the fuel. During the fire-danger season, when a donkey burned natural wood, one man had to be hired to patrol the forest for a few hundred feet in all directions to make sure no fires were started from sparks. That man no longer is needed; Pres-to-logs never throw off sparks.

Throughout the west this new fuel is giving coal stiff competition. Coal, however, has such enormous markets it probably isn't bothered by this upstart, for the 1939 Pres-to-logs volume of 120,000 tons hardly appears menacing alongside the 100,000,000 or more tons of coal used in our stoves and furnaces every year. Although the eastern markets have not been pushed—the west takes practically all the logs now made-it is felt that eastern seaboard areas are competitive territory. Logs can be shipped from the west coast by water, taking advantage of the lower transportation rates. Two carloads went to Florida that way in 1939.

Although the machine was designed to solve the problem of waste at Idaho's big white pine mill, it since has been used to press waste from almost every kind of a tree into a fuel log. Out west commercial logs are made from waste at mills handling Douglas fir, ponderosa pine, redwood, and cedar, as well as white pine.

In the south tree stumps are pulled by the thousands and the resin extracted for naval stores. Some ground-up southern stumps were sent to Lewiston where excellent pressed fuel logs were made from them, suggesting this possible method of utilizing that wood waste. Satisfactory logs also have been made experimentally from southern shortleaf and long-leaf pine, hemlock, white fir, and hickory.

When A. Kurland, owner of a box and shook factory in Capetown, South Africa, was in England in 1937 on a world tour, he heard about the American machine which presses sawmill waste into profitable fuel. Immediately he changed his plans and headed for America, his trail



Handbook of Trees

Photodescriptive. Covers all the trees east of the Rockies and north of the Gulf States. 700 illustrations, 191 maps. Buckram, \$6.

American Woods

14 volumes. A collection of thin wood sections, mounted in separable pages and enclosed in book covers, with text. 25 species and text in each volume. Cloth. \$10 per vol.

ROMEYN B. HOUGH CO. Lowville, N. Y.



OFFICIAL.

UNIFORMS

REGULAR PERSONNEL U.S.

FOREST SERVICE

Write for Prices and Sample Fabrics

THE FECHHEIMER BROS. CO. Uniforms for Over 30 Years CINCINNATI



TREE WOUND DRESSING

For destroying and prevent-ing the growth of wood destroying fungi and for the protection of wounds, use Bartlett Tree Paint. Easily applied with ordinary paint

Bartlett Mfg. Co., 3019 E. Grand Blvd., Detroit, Mich.

SEEDS OF WESTERN CONIFERS

Certified as to Source and Species

JOHN B. WOODS

712 Porter Bldg. Portland, Ore. Write for Pricelist

FUEL SAVING SENSATION The ASHLEY WOOD BURNERS

Supply 24 Hour Thermostatic Heat — Save 50% to 75% on Fuel

The Patented ASHLEY Automatic Wood Burners give far more heat—No fires to make. No ashes to take up cold mornings. Thousands in use in the finest homes, apartments, as well as the humblest shacks. A size, a price for every type buyer. (U. S. Patent 2,179,728)

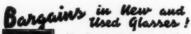
Write for Catalog and Prices

ASHLEY AUTOMATIC WOOD STOVE CO.

Columbia, S. C.

Sej

sa do w



All makes, siz sport and hunti Telescopes, ma Repair work Catalog Free.

All makes, sizes and powers of nature, sport and hunting glasses \$6 upward. Telescopes, spotting and riflescopes. Microacopes, magnifiers and compasses. Repair work and goods guaranteed. Catalog Free. Address Bex H

J. ALDEN LORING. OWEGO, N.Y.

Fred C. Knapp, Portland, Or.

Western Timber Lands

Sportsman and Family Fishing Resort







Hundreds will tell you better fishing, more home comforts, better cooked foods.

LARGEST CHANNEL BASS SEPT.

For World's Fair or Shenandoah Valley, reute via 40TEL WACHAPREAGUE, Wachapreague, Va. A. H. G. MEARS (Ownership & Management)



potato and 30 others described in free illustrated book. Write for planting advice and book.

THE WISCONSIN AQUATIC NURSERIES,
Box 331-K, Oshkosh, Wis.

Tell Advertisers You Saw It in AMERICAN FORESTS

leading to Lewiston. Following a study of the machine and the growing consumer acceptance of the logs, he instructed his plant to ship two tons of the waste from his mill to Lewiston for Bowling to use in adjusting a machine for the new job. This testing is necessary because every species of wood acts differently and Bowling needs a ton or two of waste to use in adjusting it. In January 1938, a 28,000 pound box, 13 x 11 x 10 feet, the largest package ever to go through the port of Portland, Oregon, was on its way to Capetown, with a Pres-to-log machine packed inside.

Bowling's machine probably is the most conspicuous attack yet made on the big problem of waste in lumbering. That the lumberman "wastes" half to twothirds of every tree he cuts already has been adequately deplored. Out of the thousands of sawmills cutting boards, only a comparatively small number have enough waste to satisfy the appetite of a machine which can handle twelve tons every day. Considering only the big mills, Potlatch officials estimate there is right now in the West 500,000 tons of concentrated sawmill waste available every year for these fuel logs. At the rate of expansion of the last several years that many tons of the new fuel logs ten years from now isn't a wild guess. By then something may have been done to serve sawmills with smaller volumes of waste.

In the meantime, it is interesting to note what Dean D. S. Jeffers, University of Idaho School of Forestry, has to say about Pres-to-log and national defense: "The Pres-to-log machine has something

definite to offer in national defense. Through it we can utilize more waste than ever for domestic fuel. All our oil and coal resources could be released for national defense and fuel made from wood waste could, if conditions demand, take over a substantial part of the job of supplying domestic needs. Timber products have a big part to play in national defense and it is reassuring to know we have the mechanical equipment capable of taking the wastes from these products and using them so effectively for that same cause."

In keeping with the good American tradition of finding out at the earliest possible moment how many different ways a new machine can be used, briquettes have been made from pineapple husks, from the remains of the guayule plant after the rubber has been removed, from sagebrush, from wheat, pea, and flax straw, and from peanut and almond shells. Practically every fibrous agricultural waste has been successfully smashed into fuel logs.

Flax briquettes made a particularly fine impression. The straw is rich in oil and makes a good burning log. This crop is expanding along the Pacific northwest, particularly in Oregon. Tonnages of waste might be available in sufficient quantities to keep a machine busy.

This story properly has a very happy ending. February 1940, Bowling went to San Francisco to receive a "modern pioneer" award from the National Association of Manufacturers, an honor conferred upon a select group who have contributed outstandingly to science and industry in the last quarter of a century.

TO CONSERVATIONISTS EVERYWHERE:—

Have you ordered a supply of the Association's 1940 Fire Prevention Poster Stamps? If not, use the order blank below. Why not fill it out and return it today.



ORDER BLANK

Name.....

Address....

Fill in, tear out and return to

THE AMERICAN FORESTRY ASSOCIATION

919 SEVENTEENTH STREET, N. W.

WASHINGTON, D. C.

10

10

ie

e.

aí

nf

d.

of

nf

to

0

a-

n-

I Married a Smokechaser

(Continued from page 395)

voice. "Don't you know there's a woman in camp?

"Chivalry still lives," I thought, and, clutching the blankets under my chin. sat up in bed to look out the open back door. Two boys from the kitchen detail were after water from the pool at the corner of the cabin. The one who had been swearing leaned over, hands on knees, to peer skeptically in my direction to see if the other were telling the truth. We met, eye to eye. I didn't sit up long enough to see him leave, but from the sound of his departure it was more rapid than poised.

During the next three weeks an emergency CCC camp, varying from fifteen to sixty boys, was established in our front vard. We had no rain, and fires kept showing up. There was only one day during that time when my husband wasn't out on a fire; and there is no question that the CCC boys earned their wages.

At one time, with every boy out on the fire line a new smoke was reported. The P. A. told me to send the first boys returning to the station to the new fire. Several hours later they came, eight of them, all confident that they were heading for their bedrolls and rest. I met them with the bad news and strong coffee, and then took them a mile and a half up the road, to the trail they were to follow, in our coupe - two inside, two on each running board, and two in the back with the tools. I never felt more like Simon Legree than when I watched them disappearing up the trail.

All during the summer we filled in odd moments rounding up sheep. The first band through the station had lost nearly two hundred along the driveway, and a few of them kept straggling in. We kept salt out, and held as many as we could until a herder could drive them up to

It goes without saying that stray sheep and bored CCC boys held in camp made an interesting combination. Three husky youngsters who were supposed to be helping the cook get breakfast one morning spent their time rounding up four six-months-old lambs, which they turned into the garage where their lieutenant was still asleep. Both the lieutenant and the lambs emerged alive, if somewhat the worse for wear.

It may have been one of the same lambs, not wary enough to keep from being captured a second time, that was carried past the cabin door, bleating lustily, a day or so later. A truck driver was sprawled on the ground, sound asleep; it was a perfectly natural train of events that a strong rope should be tied to the lamb's hind leg and the driver's ankle. The sheep was put down, headed in the general direction of the gate, and spanked with a hat. Somewhere, in a rocky ravine in that neighborhood, the noise that truck driver made is probably still echoing.

In the midst of a series of fires that had no respect for routine, my days fell into a surprisingly monotonous pattern.

After becoming so covered with confusion at being watched by thirty-five pairs of eyes one morning that I put the flag up upside down and then twisted the rope into a hopeless mess, I turned that job over to the CCC lieutenant. With that job eliminated, I still took weather readings three times a day, gave what information I could to fishermen on their way to the high lakes, and occasionally got special permission from the ranger to make out a fire permit for a camper.

Watching the telephone involved receiving and sending messages for the side camp, sending in grocery orders for the sheep camps, and more than once, embarrassing myself and others. At the height of the fire season, it is an accepted practice for every one on a Forest Service phone line to listen until he finds whether the call may concern him; then, if it does not, to hang up so the speakers can make themselves more readily understood. Human nature being what it is, the last half of this policy isn't so generally followed. Once, when several crews were out in the same direction, I heard our ring, and a voice I firmly believed was my husband's told me he was calling from an emergency phone some ten miles from the station, and that he would be back in about half an hour. Knowing that we had an audience, I was fairly casual, but still a good deal more cordial than necessary to my husband's boss, whom it proved to be. When he drove up he was still laughing, and I didn't hear the last of my break all summer.

With the approach of August, fire trouble stopped abruptly. A rain that approached cloudburst proportions came to relieve weary fire-fighters, and except for routine patrols for a few days, the rush was over. By way of emphasis in that last storm, lightning struck a tall pine directly across the meadow from the cabin. It was already too wet for the tree to burn, but when I investigated the next morning I found the ground littered with long strips of bark.

Lookouts still maintained their alert watch for fires, but since my husband was a smokechaser, stationed down in the valley where he could get a quick start if a fire was sighted, his duties

"The Strongest Geared Power for Its Weight in the World"

Two Speeds Positive Internal Brakes

COMPACT POWERFUL

SAFE

For Use Where Power Is Not Practical or Available

Two Ton "Lightweight"—Weight 60 lbs. Five Ton "General Utility"—Wt. 110 lbs. Fifteen Ton "Special"—Weight 680 lbs.

Positive internal brake—Two quickly shifted speeds
— Adjustable length crank handle— anti-friction
abbitt bearings—Spring operated safety dog. Only
eight parts. No keys or set screws to strip. Drum
instantly free spooled for running out cable.

Complete descriptive literature and list of deal-ors in principal U. S. and foreign cities gladly mailed. Warehouse stocks for dealers supply— Seattle, Chicage, Breeklyn, Houston.

BEEBE BROS.

2728 6th Ave. S. Seattle, Wash.



FACTORY-TO-YOU SAVINGS

U. S. FOREST SERVICE REGULATION UNIFORMS

Your choice of FOREST GREEN 16 og. All Wool London Shrunk SERGE or WHIPCORD. All you do

BUY TWO (2) GARMENTS

2 PAIR FOR \$13.90 Regular \$9.45 Jacket and \$7.65 Trousers

BOTH FOR \$15.60

REGULATION FORESTRY GOVERNMENT TWILL

Trousers and Jacket Regularly \$8.00

BOTH FOR \$7.20

Parcel Post Prepaid Anywhere in U.S.A.

WRITE TODAY: for Special Circular AF-9 with samples of these materials, order blank and illustrated literature. No Obligation.

ADDISON MFG. CO.

OWTO

Spend Less Now . . . Less Later

Save with Allis-Chalmers Diesel and gas crawler tractors (32 to 108 drawbar h.p.) . . . wheel tractors . . Leaning Frame Graders . . motor graders . . Power Units—allied equipment as bulldozers, traitbuilders, winches. Write for de-

ALLIS - CHALMERS Tractor Division - Milwaukee, Wis.



Magazine Binders

These binders, made especially for filing your copies of AMERICAN FORESTS Magazine, hold twelve issues and are fully guaranteed. Cost is \$2.50 for each binder, postpaid to any U.S.A. address.

THE AMERICAN FORESTRY **ASSOCIATION** 919 17th St., N. W., Washington, D. C.

Index to ADVERTISERS September, 1940

Addison Manufacturing Co 431
Allis - Chalmers Manufacturing Company (Tractor Division) 431
American Telephone and Telegraph Company 2nd Cover
Ashley Automatic Wood Stove Co. 429
Atkins & Company, E. C. 425
Barlum Hotel 428
Bartlett Manufacturing Company 429
Beebe Brothers 431
Caterpillar Tractor Company 387
Central Railway Signal Company, Inc. 425
DuPont de Nemours & Company, E. I
Fechheimer Brothers Company, The429
Herbst Brothers 427
Hough Company, Romeyn B. 429
Keene Forestry Associates 427
Knapp Company, The 430
Loring, J. Alden
Mayflower Hotel
Mears, A. H. G 430
Pacific Marine Supply Company423
Randolph, L. F. 425
Remington Arms Company, Inc. 421
Smith & Company, D. B. 4th Cover
Stetson Company, John B 423
Tobacco By-Products & Chemical Corporation
Tree Crop Consultant (J. W. Hershey) 427
Western Fire Equipment Company 425
Western Maine Forest Nursery 427
Weyerhaeuser Timber Company 417
Wisconsin Aquatic Nurseries, The430
Woods, John B. 429

narrowed down to finishing his job list around the station.

August of that year would have made an excellent advertisement for the pleasures of working for the Forest Service—something on the order of those tempting ones that started "Be a Forest Ranger! Hunt! Trap! Fish!" that used to run in a few magazines. Our trapping was limited to packrats and gray diggers. My husband had to stay too near the telephone to do any fishing, but I caught a few, and I know a big one that lives in a certain deep hole in the river that I'm going to try for again. Hunting at that season was done with a camera.

While we were at lunch one day a doe brought her fawn out to the salt trough in the corral. I took pictures of them before they trotted off. Then one evening, when it was quite dusky, I realized that I hadn't brought in the flag, and hurried out the front walk. A deer was in the pasture just across the road and, frightened, she bounded away toward the fence. In the twilight, her jump took her over the poles, but she hit the barbed wire above them. I don't think she was seriously hurt, but undoubtedly she blamed me for her scratch, for she never came back.

We had made plans before starting to the mountains that required that I return to the valley on September 1. Reluctantly, I did this, but I have been very homesick for that little cabin. If it were necessary for me to say what I enjoyed most about that summer, I would be unable to answer. But I am very positive of what I disliked most. It was the sympathetic tone in which people asked me how I could stand it, clear up there away from civilization.

Salcombe Regis Thorn

(Continued from page 401)

knowledge of its history or significance. Thus, on both counts it seemed my duty as the present owner to erect a monument beside the thorn tree with a statement of its origin. This, with a protective enclosure, has been put up.

An important part of the work of preservation is the maintenance of the surroundings of the thorn tree and of the old house in their rural state. It happened that their vicinity to the church and the hamlet of Church Town led the Town Planning Committee of the Sidmouth Urban District Council to sanction the erection of six houses to the acre on these fields; as indeed was proper, having regard to the interests of the owner. I have, however, notified the Council that no houses will be erected in the surrounding fields. Thus the Salcombe Regis Thorn and its surroundings are now protected and preserved. And let it not be supposed that measures such as this in the move-ment called "the Preservation of Rural England" merely gratify the taste for the curious, for it has been well and truly said that "reverence for the past gives strength for the future."

WHO'S WHO

Among the Authors in This Issue

Lydia Ann Lord (I Married A Smoke-chaser), a native Oregonian, was graduated from the University of Oregon at twenty. She taught English a while, then, loving outdoor life, entered the Forest Service "by the backdoor" through marriage to a Service man. Here she tells



Lydia Ann Lord

delightfully of her life and experiences as a wife in the field.



Charles F. Berry

CHARLES F. BERRY (Redeeming Shasta's Waters), a Bostonian and a Harvard man, is a professional writer in the fields of business and science.

VAUGHAN CORNISH (The Salcombe Regis Thorn), present owner of this famous

tree, is a distinguished Englishman and able writer, keenly interested in the preservation of England's natural features.

JOHN B. WOODS (Senator Charles Me-Nary), Secretary-Manager of the Oregon Forest Fire Association, at Portland, is one of our first-line foresters, widely known here and abroad.

Gordon T. Woods (New England Hurricane Benefits Wildlife) is a New England boy, making wildlife management his goal. He studied first at Massachusetts State and is now completing the wildlife program at the University of Michigan.

O. A. FITZGERALD (Wood Waste Magic)

is director of publications at the University of Idaho, from which school he was graduated 1923. When not on the job, he is pretty sure to be found somewhere along an Idaho trout stream.



O. A. Fitzgerald

JOSEPH L. STEARNS

(Let's Save the Biggest Trees) is a graduate forester, hardwood research engineer and author of various articles dealing with the southern hardwood industry. His hobbies are hunting, fishing and photography—and collecting wood samples from all over the world.

GOOD AMERICANS Don't "Jest Grow"

940

RV

rd

onlds

SH

nd es-

ely

urig-

the

of

ic)

der ng Iis raAt least not today when every boy and girl is subjected to a confusing array of un-American ideas at every turn.

The child who loves and knows how to use his native land—its forests, its streams, its sunlight and shade, who knows the richness of its heritage of soil, water and minerals, becomes an American who will not easily or carelessly yield it to the dictator's rule—nor will he be a party to the spoiling of its natural resources on which he depends for his prosperity in peace and his defense in war.



AMERICAN FORESTS Magazine is developing good Americans by awakening an interest in nature and the out-of-doors and by teaching the lessons of conservation in attractive and comprehensible form.

Last year 500 members of the Association rendered valuable patriotic service by sending AMERICAN FORESTS to 1,500 grammar and high schools throughout the country. Are you one of these members who are helping to create the good Americans of tomorrow? Are the schools in your community receiving AMERICAN FORESTS?

If not, here is your opportunity to help: The Association offers gift subscriptions for schools at a very special rate—9 months (from September to May) for \$2. There are thousands of schools who need conservation material and have no other means of obtaining it. Will you invest \$2 or more in the future of America by sending AMERICAN FORESTS to one or more schools this year? Send us your order for gift subscriptions today. Schools will be opening soon.

(name of school)	(address)
The Association has a long waiting list of se	chools if you do not wish to designate schools in your own community
My shook for A at AO and in and	losed. (If you prefer to be billed later, specify the date you want to be



FIRE PUMPS

The world's greatest portable fire fighters for building, home, warehouse, spot, grass, brush and forest fires. Use clear water only. Send for full details.



Carry by hand or on the back. Always ready for instant use. Positive protection against all fires. Inexpensive. Catalog, price list and testimonials on request.

D. B. SMITH & CO.,

HERCULES EQUIPMENT & RUBBER CO. 550 Third St., San Francisco, Cal.

WESTERN LOGGERS' MACHINERY CO. 302 S. W. 4th St., Portland, Ore.

405 Main Street

PACIFIC COAST AGENTS:

UTICA, N.Y.

MILL AND MINE SUPPLY, INC. 2700 Fourth Ave. So., Seattle, Wash. ROY G. DAVIS COMPANY 617 E. Third St., Los Angeles, Cal.

